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HIGHWAY INFORMATION SYSTEM

RELEASE 4.Ø

PROGRAMMING DETAILS

PART A

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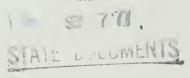
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HIGHWAY INFORMATION SYSTEM

RELEASE 4.0

PROGRAMMING DETAILS
PART A



Prepared for the:

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS
PLANNING AND RESEARCH BUREAU

In cooperation with the:

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION

The contents of this report reflect the views of Montana State University which is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Montana Department of Highways or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

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FOREWORD

This report is a portion of the documentation of Release 4.0 of the Highway Information System undertaken by the Department of Civil Engineering and Engineering Mechanics, Montana State University. The retrieval system has been evolving over the last several years under the sponsorship of the Planning and Research Bureau of the Montana Department of Highways with some assistance from the Highway Traffic Safety Division, Montana Department of Community Affairs.

Release 4.00 of the Highway Information System is documented in the following volumes:

- Highway Information System Release 4.0: System Overview

 Provides an introduction to the Highway Information System.
- Highway Information System Release 4.0: Index

 Provides an index to all manuals except the System Overview and Program Listings.
- Highway Information System Release 4.0: User's Manual

 Describes how to use the Highway Information System for retrieving information and for printing reports and summaries.
- Highway Information System Release 4.0: Data Coding Manual Describes the data card formats for entering data into the Highway Information System files.
- Highway Information System Release 4.0: System Maintenance Manual Provides information for performing scheduled system backups and file reorganizations and for allocating system files.
- Highway Information System Release 4.0: Record Formats & Subroutines

 Describes the internal record formats of the various files and provides calling sequences to subroutines. This manual is intended for persons writing new programs to add to the Highway Information System.
- Highway Information System Release 4.0: Programming Details

 Describes the existing programs and provides a guide to the program listings. This manual is intended for persons maintaining existing software in the Highway Information System.
- Highway Information System Release 4.0: Program Listings

 Contains computer-generated listings of all source programs of the Highway Information System.

Although the project was conceived, initiated, and primarily funded through the Planning and Research Bureau of the Montana Department of Highways, the development cost of selected portions of the system was borne by the Highway Traffic Safety Division of the Montana Department of Community Affairs.

In developing the system, the CE & EM Department has had the privilege of using an IBM OS/VSl $37\emptyset/145$ computer located at the Data Processing Bureau of the Montana Department of Highways in Helena. PL/I has been used for most of the programs because of its versatility and ease of use. BAL (assembler) has been used for most input-output modules and for other modules that require its increased capabilities and efficiency over PL/I.

The project could never have progressed to its current state without the continued and patient encouragement and assistance from the Planning and Research Bureau and the Data Processing Bureau of the Montana Department of Highways, and from the Highway Traffic Safety Division of the Department of Community Affairs.

The project conclusion was also hastened by the significant effort of other project personnel: Scott H. Danforth, R. Helene Knowlton, and Doug M. Geiger.

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CHAPTER 1

INTRODUCTION

This manual is intended for use by persons involved in maintaining the programs of the Highway Information System. The following publications are also needed:

Highway Information System Release $4.\phi$ - User's Manual

Highway Information System Release $4.\phi$ - Record Formats and Subroutines

Highway Information System Release $4.\phi$ - Program Listings

The following publications are needed for some applications:

Highway Information System Release $4.\phi$ - Data Coding Highway Information System Release $4.\phi$ - System Maintenance

How To Use This Manual

The programs of the Highway Information System have been designed to be as self-documenting as possible. This has been accomplished primarily by the following means:

- 1. "Smooth" logic that follows some of the principles of structured programming and some of the principles of composite design.
- 2. Modular design that reduces the size of most of the programs in the system.
- 3. Programs designed for easy readability.
- 4. Use of comments as needed to enhance the above techniques.

Structured programming has not been adopted completely because it is felt that GOTO statements have advantages that should not be eliminated. However, the use of GOTO statements has been cut down to approach the structured programming concepts of simple design and program maintenance.

Because of the self-documentation approach, the program listings provide the best documentation of the system. Detailed flow charts and flow tables are not provided for individual programs. Instead, the documentation is geared toward aiding maintenance personnel quickly locate which module is needed in order to make a system change.

Each user program (such as the FORM-16 program of the accident subsystem) is described in a separate section in this manual. Suppose that a programming change is needed in the FORM-16 program. Locate the section that deals with the FORM-16 program by checking either the table of contents or the system index. In this section is a brief description of each source module and load module of the FORM-16 program. Information provided for the load module includes:

- 1. Name of the load module.
- 2. Name of the entry point.
- 3. A list of all source modules included in the load module.
- 4. An indication of which modules can be included by automatic call when link-editing.

Information provided for each source module includes:

- 1. Name of the source module.
- 2. Language in which the source module is written.
- 3. A complete list of all external references other than to IBM routines.
- 4. In some cases, a brief description of the functions performed by the module or a brief description of the internal logic.

Each subroutine is also described in this manual. As with user programs, all of the source modules and load modules associated with the subroutine are described.

Appendix A provides a complete list of source, object, and load module names in the system.

Appendix B provides a summary of the various load modules that are stored in the HIS.REL4PTØ library, including entry point names and a list of source modules in each load module. This information is gathered from a computer file built using information from the load module documentation of this manual.

Appendix C provides a cross-reference listing of the system's source modules. This computer-generated listing is generated from the file printed in Appendix B. For each source module is listed all of the load modules in which that source module is found. This listing should be referred to whenever any source module is modified to determine which load modules need to be re-linked.

CHAPTER 2

ACCIDENT SUBSYSTEM

The accident subsystem is also known as the HIS33 subsystem. The names of accident source modules and load modules have the format HIS33xxx, where "xxx" is a 3-digit number.

This chapter describes each of the source modules and load modules of the accident subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs. Program usage and subroutine linkages are described in other HIS release 4.0 publications.

The DACRDQ Subroutine

Source Module	Language	Function
HIS33ØØØ HIS33ØØ1	Assembler Assembler	DACRDQ subroutine DACRDQ interface
Load Module	Library	Function
DACRDQ	HIS.SUBRTN4	DACRDQ interface

The HIS33000 Source Module - This module is the DACRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS33 $\emptyset\emptyset$ 1 Source Module - This module is the DACRDQ interface. It is linked with programs that call DACRDQ. When called, it loads DACRDQ into storage and passes control to it. It contains the following external reference:

FETCH - FETCH subroutine

The DACRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of DACRDQ by automatic call. It consists of the HIS33001 source module.

The DACRDB Subroutine

Source Module	Language	Function
HIS33ØØ2 HIS33ØØ3	Assembler Assembler	DACRDB subroutine DACRDB interface
Load Module	Library	Function
DACRDB	HTS SUBRTNA	DACRDB interface

The HIS33002 Source Module - This module is the DACRDB subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS33003 Source Module - This module is the DACRDB interface. It is linked with programs that call DACRDB. When called, it loads DACRDB into storage and passes control to it. The module contains the following external reference:

FETCH - FETCH subroutine

The DACRDB Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of DACRDB by automatic call. It consists of the HIS33 \emptyset \emptyset 3 source module.

The VACRDQ Subroutine

Source Module	Language	Function
HIS33Ø1Ø HIS33Ø11	Assembler Assembler	VACRDQ subroutine VACRDQ interface
Load Module	Library	Function
VACRDQ	HIS.SUBRTN4	VACRDQ interface

The HIS33010 Source Module - This module is the VACRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS33011 Source Module - This module is the VACRDQ interface. It is linked with programs that call VACRDQ. When called, it loads VACRDQ into storage and passes control to it. The module contains the following external reference:

FETCH - FETCH subroutine

The VACRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of VACRDQ by automatic call. It consists of the HIS33Ø11 source module.

The VACRDA Subroutine

Source		
Module	Language	Function
HIS33Ø12	Assembler	VACRDA subroutine
HIS33Ø13	Assembler	VACRDA interface
Load		
Module_	Library	Function
VACRDA	HIS.SUBRTN4	VACRDA interface

The HIS33012 Source Module - This module is the VACRDA subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

VACRDQ, VACRDQF, VACRDQR, VACRDQX, VACRDQC - VACRDQ subroutine

The HIS33013 Source Module - This module is the VACRDA interface. It is linked with programs that call VACRDA. When called, it loads VACRDA into storage and passes control to it. The module contains the following external reference:

FETCH - FETCH subroutine

The VACRDA Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of VACRDA by automatic call. It consists of the HIS33Ø13 source module.

The ACDRDQ Subroutine

Source Module	Language	Function
HIS33Ø2Ø HIS33Ø21	Assembler Assembler	ACDRDQ subroutine ACDRDQ interface
Load Module	Library	Function
ACDRDQ	HIS.SUBRTN4	ACDRDQ interface

The HIS33Ø2Ø Source Module - This module is the ACDRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS33Ø21 Source Module - This module is the ACDRDQ interface. It is linked with programs that call ACDRDQ. When called, it loads ACDRDQ into storage and passes control to it. The module contains the following external reference:

FETCH - FETCH subroutine

The ACDRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of ACDRDQ by automatic call. It consists of the HIS33Ø21 source module.

The ACDWRQ Subroutine

Source
Module Language Function
HIS33Ø22 Assembler ACDWRQ subroutine

The HIS33022 Source Module - This module is the ACDWRQ subroutine. It contains no external references.

The ACCFILE Address List

Source

Module	Language	Function		
HIS33Ø8Ø	Assembler	ACCFILE add	dress list	
Load	Entry		Access	
Module	Point	<u>Library</u>	Name	Function
HIS33Ø8Ø	ACCFILE	HIS.REL4PTØ	ACCFILE	Accident dynamic subroutines

The HIS33Ø8Ø Source Module - This source module contains a list of addresses of the address lists of the accident dynamic subroutines, allowing all of the dynamic subroutines to be stored in a single load module. External references include DACRDQE, DACRDBE, VACRDQE, VACRDAE, and ACDRDQE.

The HIS33080 Load Module - This load module contains the accident dynamic subroutines (with the exception of ACCRD). The entry point of the load module is the ACCFILE address list. The load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
	HIS33ØØØ	DACRDQ subroutine
	HIS33ØØ2	DACRDB subroutine
	HIS33Ø1Ø	VACRDQ subroutine
	HIS33Ø12	VACRDA subroutine
	HIS33Ø2Ø	ACDRDQ subroutine
	HIS33Ø8Ø	ACCFILE address list

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The ACCRD Subroutine

Module	Language	Function		
HIS33Ø9Ø HIS33Ø91	Assembler Assembler	ACCRD subro		
Load Module	Entry Point	Library	Access Name	Function
HIS33Ø9Ø ACCRD	ACCRDE	HIS.REL4PTØ HIS.SUBRTN4	ACCRD	ACCRD subroutine ACCRD interface

The HIS33Ø9Ø Source Module - This source module is the ACCRD subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

SETINST - PRINT subroutine

SELTEST, SELTESTI, SELTESTC - SELTEST subroutine

CVTLOCN - CVTLOCN subroutine

DACRDQ, DACRDQF, DACRDQR, DACRDQC - DACRDQ subroutine

DACRDB, DACRDBF, DACRDBC - DACRDB subroutine

VACRDA, VACRDAI, VACRDAR, VACRDAS, VACRDAC - VACRDA subroutine

ACDRDQ, ACDRDQF, ACDRDQR, ACDRDQC - ACDRDQ subroutine

The HIS33Ø91 Source Module - This module is the ACCRD interface. It is linked with programs that call ACCRD. When called, it loads ACCRD into storage and passes control to it. The module contains the following external reference:

FETCH - FETCH subroutine

The HIS33Ø9Ø Load Module - This load module contains the dynamic ACCRD subroutine. It contains the following source modules:

	Source	
	Module	Function
×	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø4	CVTLOCN subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS22ØØ1	SELTEST interface
*	HIS33ØØ1	DACRDQ interface
*	HIS33ØØ3	DACRDB interface
*	HIS33Ø13	VACRDA interface
*	HIS33Ø21	ACDRDQ interface
	HIS33Ø9Ø	ACCRD subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The ACCRD Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of ACCRD by automatic call. It consists of the HIS33 ϕ 91 source module.

The CVTACC Subroutine

Source Module	Language	Function
Hodule	Language	Function
HIS33715	Assembler	CVTACC subroutine
Load Module	Library	Function
CVTACC	HIS.SUBRTN4	CVTACC subroutine

The HIS33715 Source Module - This module is the CVTACC subroutine. It contains no external references.

The CVTACC Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of CVTACC by automatic call. It consists of the HIS33715 source module.

The SUM-BY-DAY-&-TIME Program

Source			
Module	Language	Function	
HIS332ØØ	PL/I	SUM-BY-DAY-&-	-TIME mainline
Load	Entry		
Module	Point	Library	Function
HIS33200	PLISTART	HIS.REL4PTØ	SUM-BY-DAY-&-TIME

The HIS33200 Source Module - This module is the mainline program of SUM-BY-DAY-&-TIME. It contains the following external references:

PRINTER, PRINT, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

ACCRD, ACCRDF, ACCRDO, ACCRDC - ACCRD subroutine

GETDAY - GETDAY subroutine

The HIS33200 Load Module - The SUM-BY-DAY-&-TIME load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø1	GETDAY subroutine
*	HIS33Ø91	ACCRD interface
	HIS332ØØ	SUM-BY-DAY-&-TIME mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUM-BY-CONTR-CIRC Program

Source Module	Language	Function	
HIS332Ø1	PL/I	SUM-BY-CONTR-	-CIRC mainline
Load Module	Entry Point	Library	Function
HIS332Ø1	PLISTART	HIS.REL4PTØ	SUM-BY-CONTR-CIRC

The HIS332Ø1 Source Module - This module is the mainline program of SUM-BY-CONTR-CIRC. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, DUMP - PRINT subroutine

ACCRD, ACCRDF, ACCRDO, ACCRDC - ACCRD subroutine

The HIS332Ø1 Load Module - The SUM-BY-CONTR-CIRC load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS33Ø91	ACCRD interface
	HIS332Ø1	SUM-BY-CONTR-CIRC mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The FORM-16 Program

Source Module	Language	Function	
HIS332Ø2 HIS332Ø3 HIS332Ø4	PL/I PL/I PL/I	FORM-16 mainl FORM16A subro FORM16B subro	utine
Load Module	Entry Point	Library	Function
HIS332Ø2	PLISTART	HIS.REL4PTØ	FORM-16

The HIS33202 Source Module - This module is the mainline program of FORM-16. It contains the following external references:

PRINTER, PRINT, SETHDG, DUMP - PRINT subroutine

FORM16A - FORM16A subroutine

FORM16B - FORM16B subroutine

The HIS332 \emptyset 3 Source Module - This module is the FORM16A subroutine. It reads the accident files and performs calculations for the summaries. Values are totaled into arrays provided by the mainline program. Two parameters are passed to FORM16A: a binary fixed (15) variable and an array of fixed(5) variables with bounds (1:2 \emptyset 16). FORM16A returns a code in the binary variable that indicates the type of location parameters specified on the command:

- Ø Invalid parameter
- 1 No parameter
- 2 LOCATION=STATEWIDE
- 3 CITY parameter
- 4 COUNTY parameter
- 5 LOCATION=EVERYTHING

The array is used for storing values to be printed in the summary. The module contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine ACCRD, ACCRDF, ACCRDO, ACCRDC - ACCRD subroutine INCITY - INCITY subroutine

The HIS33204 Source Module - This module is the FORM16B subroutine. It prints the FORM-16 summary using values calculated by FORM16A. The two parameters returned by FORM16A are passed to FORM16B by the mainline program. FORM16B contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETPOSA, SETHDGS, SETINST, DUMP - PRINT subroutine

The HIS33202 Load Module - The FORM-16 load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
	HIS21Ø12	INCITY subroutine
*	HIS33Ø91	ACCRD interface
	HIS332Ø2	FORM-16 mainline
	HIS332Ø3	FORM16A subroutine
	HIS332Ø4	FORM16B subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUM-BY-TRAFFICWAY Program

Source			
Module	Language	Function	
HIS332Ø5 HIS332Ø6 HIS332Ø7 HIS332Ø8	PL/I PL/I PL/I PL/I	SUM-BY-TRAFFI SUMTRFA subro SUMTRFB subro SUMTRFC subro	outine
Load Module	Entry Point	Library	Function
HIS332Ø5	PLISTART	HIS.REL4PTØ	SUM-BY-TRAFFICWAY

The HIS332Ø5 Source Module - This module is the SUM-BY-TRAFFICWAY mainline. It contains the following external references:

PRINTER, DUMP - PRINT subroutine

SUMTRFA - SUMTRFA subroutine

SUMTRFB - SUMTRFB subroutine

SUMTRFC - SUMTRFC subroutine

The HIS33206 Source Module - This module is the SUMTRFA subroutine. It reads the accident files and performs the calculations required for the summary. When called by the mainline, a binary fixed(15) variable and an array of binary fixed (15) variables with bounds (1:5,1:2,1:525) are passed. SUMTRFA returns a value in the first variable that indicates the type of location parameter specified on the command (see the HIS33203 source module above). During the execution of SUMTRFA, the passed array is divided into 100 subarrays (the first is the array (1,1,*), the second is the array (1,2,*), the third is the array (2,1,*), etc). Within each subarray is 525 variables used for storing values of a given type (such as interstate fatal or primary non-fatal). This method of dividing the array is the most efficient during the calculations phase because based storage can be used to address one of the ten subarrays, thereby reducing substantially the array bound calculations that would be needed if three bounds were specified each time an element of the array is referred to. The SUMTRFA program has the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

ACCRD, ACCRDF, ACCRDO, ACCRDC - ACCRD subroutine

GETDAY - GETDAY subroutine

CNVSTAT - CNVSTAT subroutine

The HIS332Ø7 Source Module - This module is the SUMTRFB subroutine. It rearranges the array produced by SUMTRFA into a format that is more efficient for use by the print-out subroutine. After SUMTRFB executes, the array is broken down into a number of subarrays, each of which contains all of the values needed in one of the summaries that will be printed by SUMTRFC. SUMTRFB contains no external references.

The HIS33208 Source Module - This module is the SUMTRFC subroutine. It prints the SUM-BY-TRAFFICWAY summaries from the values stored in the array produced by SUMTRFB. The module contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETHDGS, SETINST, DUMP, SETNEW - PRINT subroutine

CNVSTAT - CNVSTAT subroutine

INCNTY - INCNTY subroutine

The HIS332Ø5 Load Module - The SUM-BY-TRAFFICWAY load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9ØØ	CNVSTAT subroutine
*	HIS2Ø9Ø1	GETDAY subroutine
*	HIS21142	INCNTY subroutine
*	HIS33Ø91	ACCRD interface
	HIS332Ø5	SUM-BY-TRAFFICWAY mainline
	HIS332Ø6	SUMTRFA subroutine
	HIS332Ø7	SUMTRFB subroutine
	HIS332Ø8	SUMTRFC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The MOTORCYCLE-SUMMARY Program

Source Module	Language	Function	
HIS332Ø9 HIS3321Ø HIS33211 HIS33212	PL/I PL/I PL/I PL/I	MOTORCYCLE-SU CYCLE1 subrou CYCLE2 subrou CYCLE3 subrou	ıtine
Load Module	Entry Point	Library	<u>Function</u>
HIS332Ø9	PLISTART	HIS.REL4PTØ	MOTORCYCLE-SUMMARY

The HIS33209 Source Module - This module is the mainline program of MOTORCYCLE-SUMMARY. It contains the following external references:

PRINTER, PRINT, SETHDG, DUMP - PRINT subroutine

CYCLE1 - CYCLE1 subroutine

CYCLE2 - CYCLE2 subroutine

CYCLE3 - CYCLE3 subroutine

The HIS3321® Source Module - This module is the CYCLE1 subroutine. It reads the accident files and performs calculations for the summaries. A set of four arrays is passed by the mainline programs, and CYCLE1 stores the results of its calculations into these arrays. CYCLE1 has the following external references:

INCITY - INCITY subroutine

PRINTER, PRINT, DUMP - PRINT subroutine

ACCRD, ACCRDF, ACCRDO, ACCRDC - ACCRD subroutine

GETDAY - GETDAY subroutine

The HIS33211 Source Module - This module is the CYCLE2 subroutine. It rearranges the arrays produced by CYCLE1 into formats more easily and efficiently handled by CYCLE3. CYCLE2 contains no external references.

The HIS33212 Source Module - This module is the CYCLE3 subroutine. It prints the motorcycle summaries using the arrays produced by CYCLE2. The module contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST - PRINT subroutine
INCNTY - INCNTY subroutine

The HIS33209 Load Module - The MOTORCYCLE-SUMMARY load module contains the following source modules:

	Source Module	Function
	HIS20050	PRINT interface
*	HIS2ØØ51	FETCH interface * Stored in HIS.SUBRTN4 to allow
*	HIS2ØØ53	TABLRD interface inclusion by automatic call.
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø1	GETDAY subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS21142	INCNTY subroutine
*	HIS33Ø91	ACCRD interface
	HIS332Ø9	MOTORCYCLE-SUMMARY mainline
	HIS3321Ø	CYCLE1 subroutine
	HIS33211	CYCLE2 subroutine
	HIS33212	CYCLE3 subroutine

The COUNT-ACCIDENTS Program

Source Module	Language	Function	
HIS33213	PL/I	COUNT-ACCIDEN	NTS mainline
Load	Entry		
Module	Point	Library	Function
HIS33213	PLISTART	HIS.REL4PTØ	COUNT-ACCIDENTS

The HIS33213 Source Module - This module is the mainline program of COUNT-ACCIDENTS. It contains the following external references:

PRINTER, PRINT, SETHDGS, DUMP - PRINT subroutine ACCRD, ACCRDF, ACCRDC - ACCRD subroutine

The HIS33213 Load Module - The COUNT-ACCIDENTS load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ58	GETLIST subroutine
* HIS33Ø91	ACCRD interface
HIS33213	COUNT-ACCIDENTS mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The TA-1 Program

Source Module	Language	Function	
HIS33214 HIS33215 HIS33216 HIS33217	PL/I PL/I PL/I PL/I	TA-l mainline TAlCALA subro TAlCALB subro TAlPRNT subro	outine outine
Load Module	Entry Point	Library	Function
HIS33214	PLISTART	HIS.REL4PTØ	TA-1

The HIS33214 Source Module - This module is the TA-1 mainline. It contains the following external references:

PRINTER - PRINT subroutine

TAICALA - TAICALA subroutine

TAICALB - TAICALB subroutine

TAIPRNT - TAIPRNT subroutine

The HIS33215 Source Module - This module is the TA1CALA subroutine. It is the first of two calculation subroutines. It performs calculations for rural on-system accidents, using the accident directory file. The module contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine
RLGRDQ, RLGRDQF, RLGRDQX, RLGRDQC - RLGRDQ subroutine
ACCRD, ACCRDF, ACCRDC - ACCRD subroutine
INCITY - INCITY subroutine

The HIS33216 Source Module - This module is the TAlCALB subroutine. It is the second calculation subroutine. It performs calculations for off-system accidents and for municipal on-system accidents, using the accident detail file. The module contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

ACCRD, ACCRDF, ACCRDC - ACCRD subroutine

INCITY - INCITY subroutine

The HIS33217 Source Module - This module is the TAIPRNT subroutine. It prints the summary using the values provided by the calculation subroutines. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine

The HIS33214 Load Module - The TA-1 load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLED interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS33Ø91	ACCRD interface
	HIS33214	TA-1 mainline
	HIS33215	TAlCALA subroutine
	HIS33216	TAlCALB subroutine
	HIS33217	TAIPRNT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The ACCIDENT-BY-SECTIONS Program

Module_	Language	Function	
HIS3325Ø	PL/I	ACCIDENT-BY-S	SECTIONS mainline
Load	Entry		
Module	Point	Library	Function
HIS3325Ø	PLISTART	HIS.REL4PTØ	ACCIDENT-BY-SECTIONS

The HIS3325Ø Source Module - This module is the mainline program of ACCIDENT-BY-SECTIONS. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETNEW, SETHDGS, SETLINK, DUMP - PRINT subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

INCITY - INCITY subroutine

SETINST - PRINT subroutine

The HIS3325Ø Load Module - The ACCIDENT-BY-SECTIONS load module contains the following source modules:

	Source	T
	<u>Module</u>	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
	HIS3325Ø	ACCIDENT-BY-SECTIONS mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The Accident-by-Sections Table - The accident-by-sections table is member ACCSECT of library HIS.TABLES. It contains loss values by year as reported by the National Safety Council. The records have the following format:

Columns	Length	Format	Data Element
1-2	2	pic'99'	Year
3-6	4	pic'zzz9'	Property damage loss
7-11	5	pic'zzzz9'	Injury loss
12-18	7	pic'zzzzzz9'	Fatality loss
19-8Ø	62		Unused

The RURAL-ACC-CLUSTERS Program

Source Module	Language	Function	
HIS3331Ø	PL/I	RURAL-ACC-CLU	STERS mainline
Load Module	Entry Point	Library	Function
		Library	
HIS3331Ø	PLISTART	HIS.REL4PTØ	RURAL-ACC-CLUSTERS

The HIS3331Ø Source Module - This module is the mainline program of RURAL-ACC-CLUSTERS. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETPOSA, SETHDG, SETINST, DUMP - PRINT subroutine

POINTQ,POINTQO,POINTQC - POINTQ subroutine

TRFRDQ,TRFRDQF,TRFRDQR,TRFRDQT,TRFRDQC - TRFRDQ subroutine

ACCRD,ACCRDF,ACCRDC - ACCRD subroutine

DATE4 - DATE4 subroutine

The HIS3331Ø Load Module - The RURAL-ACC-CLUSTERS load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS31ØØ1	TRFRDQ interface
*	HIS32Ø21	POINTQ interface
*	HIS33Ø91	ACCRD interface
	HIS3331Ø	RURAL-ACC-CLUSTERS mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The RURAL-ACC-ANALYSIS Program

Source			
Module	Language	Function	
HIS33311 HIS33312 HIS33313 HIS33314	PL/I PL/I PL/I PL/I	RURAL-ACC-ANA DIAGRAM subro SUMMARY subro TRAFIC subrou	outine
Load Module	Entry Point	Library	Function
HIS33311	PLISTART	HIS.REL4PTØ	RURAL-ACC-ANALYSIS

The HIS33311 Source Module - This module is the RURAL-ACC-ANALYSIS mainline program. It contains the following external references:

PRINTER, PRINT, SETINST - PRINT subroutine

DIAGRAM - DIAGRAM subroutine

TRAFIC - TRAFIC subroutine

SUMMARY - SUMMARY subroutine

The HIS33312 Source Module - This module is the DIAGRAM subroutine. It is the first of the three RURAL-ACC-ANALYSIS subroutines called by the main-line program. It prints a diagram of the roadway section showing accident locations and roadlog information. The module contains the following external references:

PRINTER, PRINT, SETHDGS, SETPOS - PRINT subroutine

The HIS33313 Source Module - This module is the SUMMARY subroutine. It is the last of the three subroutines to be called by the mainline program. It prints listings of accident information for the roadway section. SUMMARY contains the following external references:

PRINTER, PRINT, SETHDGS, SETPOS, SETLINK - PRINT subroutine
GETDAY - GETDAY subroutine

The HIS33314 Source Module - This module is the TRAFIC subroutine. It is the second of the three subroutines to be called by the mainline program. It computes and prints traffic count information for the roadway section. TRAFIC contains the following external references:

PRINTER, PRINT, SETPOS, SETHDGS - PRINT subroutine CALJUL - CALJUL subroutine

Note: CALJUL is a subroutine written by the Montana Department of Highways. It is stored in the library SYS1.SYSTEMS.

The HIS33311 Load Module - The RURAL-ACC-ANALYSIS load module contains the following source modules:

Source Module	Function
* * *	PRINT interface
HIS2ØØ58	GETLIST subroutine * Stored in HIS.SUBRTN4 to allow
HIS2Ø9Ø1	GETDAY subroutine inclusion by automatic call.
HIS33311	RURAL-ACC-ANALYSIS mainline
HIS33312	DIAGRAM subroutine
HIS33313	SUMMARY subroutine ** Must be included from
HIS33314	TRAFIC subroutine SYS1.SYSTEMS.
CALJUL	CALJUL subroutine
	Module HIS2ØØ5Ø HIS2ØØ58 HIS2Ø9Ø1 HIS33311 HIS33312 HIS33313

The HIGH-ACC-INTERSECTNS Program

Source Module	Language	Function	
HIS3332Ø HIS33321 HIS33322 HIS33323 HIS33324	PL/I PL/I PL/I PL/I PL/I	INSCTNA subro	outine outine
Load Module HIS33320	Entry Point PLISTART	Library HIS.REL4PTØ	Function HIGH-ACC-INTERSECTNS

The HIS3332Ø Source Module - This module is the mainline program of HIGH-ACC-INTERSECTNS. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, DUMP - PRINT subroutine

INSCTNA - INSCTNA subroutine

INSCTNB - INSCTNB subroutine

INSCTNC - INSCTNC subroutine

INSCTND - INSCTND subroutine

The HIS33321 Source Module - This module is the INSCTNA subroutine. It prints the options specified by the user on his command and checks for mistakes in the command. If processing #-INTERSECTIONS or #-ACCIDENTS, INSCTNA reads the grid table records for the specified city and writes them to a scratch file for use by the other subroutines, and returns a count of the number of records to the mainline program. If processing individual intersections, INSCTNA performs these steps:

- 1. Read and print the user-supplied intersection names.
- 2. Read the grid table and write only the records for the specified intersections to the scratch file (a count of these records is returned to the mainline program).
- 3. Print an error message for each specified intersection name for which no entry was found in the grid table.

INSCTNA contains the following external references:

PRINTER, PRINT, SETPOS, SETNEW, SETINST, DUMP - PRINT subroutine

DUMPDD - DUMPDD subroutine

CVTCITY - CVTCITY subroutine

The HIS33322 Source Module - This module is the INSCTNB subroutine. It creates an indexed-sequential directory file containing the selected accidents within the specified city. The key of the file consists of a 4-digit intersection number followed by the 12-digit accident number. The intersection number is a number assigned by HIGH-ACC-INTERSECTIONS, and is the record number of the grid table entry for the intersection. The records in the directory file are in order by intersection number so that all of the accidents occurring at a given intersection are stored together in the file. INSCTNB contains the following external references:

PRINTER, PRINT, SETPOS, SETNEW, SETINST, DUMP - PRINT subroutine

ACCRD, ACCRDF, ACCRDC - ACCRD subroutine

CVTCITY - CVTCITY subroutine

DUMPDD - DUMPDD subroutine

The HIS33323 Source Module - This module is the INSCTNC subroutine. It creates a sequential index file containing a count of the number of accidents at each intersection. The file is sorted in descending order by the count field. INSCTNC contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine

DUMPDD - DUMPDD subroutine

The HIS33324 Source Module - This module is the INSCTND subroutine. It prints the listings based on the index file and directory file generated by INSCTNB and INSCTNC. It contains the following external references:

PRINTER, PRINT, SETPOS, SETINST, SETLINK, SETHDGS, DUMP - PRINT subroutine VACRDQ, VACRDQF, VACRDQX, VACRDQC - VACRDQ subroutine

DUMPDD - DUMPDD subroutine

GETDAY - GETDAY subroutine

CVTCITY - CVTCITY subroutine

The HIS33320 Load Module - The HIGH-ACC-INTERSECTN load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø1	GETDAY subroutine
*	HIS21Ø13	CVTCITY subroutine
*	HIS33Ø11	VACRDQ interface
*	HIS33Ø91	ACCRD interface
	HIS3332Ø	HIGH-ACC-INTERSECTNS mainline
	HIS33321	INSCTNA subroutine
	HIS33322	INSCTNB subroutine
	HIS33323	INSCTNC subroutine
	HIS33324	INSCTND subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The ACC-MILEPOINT-ADJUST Program

Source Module	Language	Function	
HIS335ØØ HIS335Ø1 HIS335Ø2 HIS335Ø3	PL/I PL/I PL/I PL/I	ACC-MILEPOINT ADJUSTE subro ADJUSTU subro	outine
Load Module	Entry Point	Library	Function
HIS335ØØ	PLISTART	HIS.REL4PTØ	ACC-MILEPOINT-ADJUST

The HIS33500 Source Module - This module is the mainline program of ACC-MILEPOINT-ADJUST. It contains the following external references:

PRINTER, PRINT, SETNEW, SETINST, DUMP - PRINT subroutine

ADJUSTE - ADJUSTE subroutine

ADJUSTC - ADJUSTC subroutine

ADJUSTU - ADJUSTU subroutine

The HIS33501 Source Module - This module is the ADJUSTE subroutine. It performs these functions:

- 1. Check for valid command parameters.
- 2. Read the user-supplied data cards and check for validity.
- 3. Write valid data cards to scratch file.

ADJUSTE contains these external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDG, SETINST, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

DUMPDD - DUMPDD subroutine

DATEDIT - DATEDIT subroutine

The HIS33502 Source Module - This module is the ADJUSTC subroutine. It reads the file built by ADJUSTE together with the accident directory file and calculates the required new keys. The output from ADJUSTC is a second scratch file. ADJUSTC contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETHDG, SETINST, DUMP - PRINT subroutine

ACDRDQ, ACDRDQF, ACDRDQR, ACDRDQC - ACDRDQ subroutine

POINTQ, POINTQO, POINTQC - POINTQ subroutine

DATE4 - DATE4 subroutine

The HIS335Ø3 Source Module - This module is the ADJUSTU subroutine. It reads the scratch file built by ADJUSTC together with the accident detail file, and performs updates to the detail file. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

The HIS33500 Load Module - The ACC-MILEPOINT-ADJUST load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS32Ø21	POINTQ interface
*	HIS33Ø21	ACDRDQ interface
	HIS335ØØ	ACC-MILEPOINT-ADJUST mainline
	HIS335Ø1	ADJUSTE subroutine
	HIS335Ø2	ADJUSTC subroutine
	HIS335Ø3	ADJUSTU subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE-ACC-BY-SECTN Program

Source Module	Language	Function	
HIS336ØØ HIS336Ø1 HIS336Ø2	PL/I PL/I PL/I	CREATE-ACC-BY AREP1 subrout AREP2 subrout	
Load Module	Entry Point	Library	Function
HIS336ØØ	PLISTART	HIS.REL4PTØ	CREATE-ACC-BY-SECTN

The HIS33600 Source Module - This module is the mainline program of CREATE-ACC-BY-SECTN. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine

AREP1 - AREP1 subroutine

AREP2 - AREP2 subroutine

PTR BLK - pointer to CREATE-ACC-BY-SECTN communications block

The HIS33601 Source Module - This module is the AREP1 subroutine, also known as the "sections phase." It builds a skeleton accident report file using the section breaks in the traffic file. It contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

TRFRDQ, TRFRDQI, TRFRDQT, TRFRDQC - TRFRDQ subroutine

PTR_BLK - pointer to CREATE-ACC-BY-SECTN communications block

The HIS336\$2 Source Module - This module is the AREP2 subroutine, also known as the "roadlog/accident phase." It reads the skeleton file and fills in information from HIS files to complete the records. It contains the following external references:

PRINTER, PRINT, PRINTA, DUMP - PRINT subroutine

TRFRDQ, TRFRDQF, TRFRDQC - TRFRDQ subroutine

RLGRDQ, RLGRDQI, RLGRDQC - RLGRDQ subroutine

ACDRDQ, ACDRDQI, ACDRDQC - ACDRDQ subroutine

DACRDB, DACRDBC - DACRDB subroutine

DISTQ, DISTQO, DISTQC - DISTQ subroutine

VEHMILE, VEHMILC - VEHMILE subroutine

GETDAY - GETDAY subroutine

PTR_BLK - pointer to CREATE-ACC-BY-SECTN communications block

The HIS33600 Load Module - The CREATE-ACC-BY-SECTN load module contains the following source modules:

	Source Module	Function
* * * * * *	HIS2ØØ5Ø HIS2ØØ51 HIS2ØØ58 HIS2Ø9Ø1 HIS3ØØØ1 HIS31ØØ1 HIS311ØØ	PRINT interface FETCH interface GETLIST subroutine GETDAY subroutine RLGRDQ interface TRFRDQ interface VEHMILE subroutine DISTQ interface
	HIS33ØØ3	DACRDB interface
*	HIS33Ø21	ACDRDQ interface
	HIS33600	CREATE-ACC-BY-SECTN mainline
	HIS336Ø1	AREP1 subroutine
	HIS336Ø2	AREP2 subroutine

The LIST-ACC-BY-SECTN Program

Source Module	Language	Function	
HIS3362Ø	PL/I	LIST-ACC-BY-S	SECTN mainline
Load Module	Entry Point	Library	Function
HIS3362Ø	PLISTART	HIS.REL4PTØ	LIST-ACC-BY-SECTN

The HIS3362Ø Source Module - This source module is the LIST-ACC-BY-SECTN mainline program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDGS, SETINST, DUMP - PRINT subroutine

The HIS33620 Load Module - The LIST-ACC-BY-SECTN load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
	HIS3362Ø	LIST-ACC-BY-SECTN mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE-FA-ACC-DIREC Program

Source			
Module	Language	Function	
HIS3363Ø	PL/I	CREATE-FA-AC	CC-DIREC mainline
HIS33631	Assembler	DIRCRT subro	utine
HIS33632	PL/I	DIRSORT subr	outine
HIS33633	Assembler	DIRLOAD subr	outine
Load	Entry		
Module	Point	Library	Function
HIS3363Ø	PLISTART	HIS.REL4PTØ	CREATE-FA-ACC-DIREC

The HIS3363Ø Source Module - This module is the mainline program of CREATE-FA-ACC-DIREC. It contains the following external references:

PRINTER, SETHDG - PRINT subroutine

DIRCRT - DIRCRT subroutine

DIRSORT - DIRSORT subroutine

DIRLOAD - DIRLOAD subroutine

The HIS33631 Source Module - This module is the DIRCRT subroutine. It reads the accident detail file and writes a directory-format record to a scratch file for each rural on-system accident. It contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine

DACRDQ, DACRDQF, DACRDQC - DACRDQ subroutine

TESTPTW - TESTPTW subroutine

POINTQC - POINTQ subroutine

The HIS33632 Source Module - This module is the DIRSORT subroutine. It sorts the scratch file built by DIRCRT in order so that it can be loaded into an indexed-sequential file. DIRSORT contains the following external reference:

DUMP - DUMP subroutine (DUMP entry point of PRINT)

The HIS33633 Source Module - This module is the DIRLOAD subroutine. It loads the directory file using the sorted file produced by DIRSORT. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
RLGRDQ, RLGRDQF, RLGRDQC - RLGRDQ subroutine
ACDWRQ, ACDWRQC - ACDWRQC subroutine

The HIS3363Ø Load Module - The CREATE-FA-ACC-DIREC load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS20058	GETLIST subroutine
*	HIS21112	INPTW subroutine
*	HIS21113	TESTPTW subroutine
*	HIS30001	RLGRDQ interface
*	HIS3Ø1ØØ	COINKEY subroutine
*	HIS32Ø21	POINTQ interface
*	HIS33003	DACRDQ interface
*	HIS33Ø22	ACDWRQ subroutine
	HIS3363Ø	CREATE-FA-ACC-DIREC mainline
	HIS33631	DIRCRT subroutine
	HIS33632	DIRSORT subroutine
	HIS33633	DIRLOAD subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-FA-ACC-DIREC Program

Source			
Module	Language	Function	
HIS3364Ø	PL/I	LIST-FA-ACC-I	OIREC mainline
Load	Entry		
Module	Point	Library	Function
HIS3364Ø	PLISTART	HIS.REL4PTØ	LIST-FA-ACC-DIREC

The HIS3364Ø Source Module - This source module is the mainline program of LIST-FA-ACC-DIREC. It contains the following external references:

PRINTER, PRINT, SETPOS, SETPOSA, SETHDG, SETINST, SETNEW, DUMP - PRINT subroutine

ACCRD, ACCRDF, ACCRDC - ACCRD subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The HIS3364Ø Load Module - The LIST-FA-ACC-DIREC load module contains the following source modules:

	Source Module	Function
	Hoddic	runccion
	HIS2ØØ5Ø	PRINT interface
	HIS2ØØ51	FETCH interface
	HIS2ØØ53	TABLRD interface
	HIS2ØØ58	GETLIST subroutine
*	HIS33Ø91	ACCRD interface
	HIS3364Ø	LIST-FA-ACC-DIREC mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE and EDIT Programs

Source Module	Language	Fur	nction
HIS337ØØ HIS337Ø1 HIS337Ø3 HIS33712 HIS33713 HIS33714 HIS33735	PL/I PL/I PL/I PL/I PL/I PL/I PL/I	UPDATE, FUNCTI	utine outine
Load Module HIS337ØØ HIS337Ø1 HIS337Ø3 HIS33735	Entry Point PLISTART PLISTART PLISTART PLISTART	Library HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	Function UPDATE, FUNCTION=DELETE UPDATE, FUNCTION=INSERT UPDATE, FUNCTION=REWRITE EDIT

The HIS337 $\phi\phi$ Source Module - This module is the mainline program of the delete function. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine

The HIS337 ϕ 1 Source Module - This module is the mainline program of the insert function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETPOSA, SETHDG, SETINST, DUMP - PRINT subroutine

ACCEDIT, ACCEDI, ACCEDC - ACCEDIT subroutine CVTACC, CVTDETA, CVTVEHA - CVTACC subroutine DUMPDD - DUMPDD subroutine The HIS337Ø3 Source Module - This module is the mainline program of the rewrite function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDGS, SETINST, DUMP - PRINT subroutine

ACCEDIT, ACCEDI, ACCEDC - ACCEDIT subroutine

CVTACC, CVTDETA, CVTDETB, CVTVEHA, CVTVEHB - CVTACC subroutine

The HIS33712 Source Module - This module is the ACCEDIT subroutine. It performs edit checks on accident data cards. The edit checks performed by ACCEDIT are new for release 4.0 of the Highway Information System. The edit checks carried over from release 3.0 are performed by ACCED2 (module HIS33713). When ACCEDIT is called, three parameters are passed. The first parameter is a pointer which must contain the address of the following structure:

```
1 SS,
  2 S A
             CHARACTER (80),
                                A card
   2 S B
              CHARACTER (80),
                               B card
   2 S C(3Ø)
             CHARACTER (80),
                               Up to 30 C cards
   2 S D(3Ø)
             CHARACTER (80),
                               Up to 30 D cards
              CHARACTER (5),
                                Up to 5 I cards
   2 S I(5)
   2 # C
              FLXED(3),
                                Number of C cards
   2 # D
              FIXED(3),
                                Number of D cards
   2 # I
                                Number of I cards
              FLXED(3),
```

The second parameter is a binary fixed(15) return code, which is set by ACCEDIT to one of the following:

- No severe errors or warnings detected
- 1 One or more warnings but no severe errors detected
- 2 One or more severe errors detected

The third parameter is a binary fixed(15) code, which ACCEDIT sets to indicate the type of location specified for the accident:

- 1 Route number only
- 2 Route number and milepoint
- 3 Route number and city coordinates
- 4 City coordinates only
- 5 Range, township, and section
- 6 No location specified
- 7 Location field uninterpretable

After performing its own edit checks, ACCEDIT calls ACCED2 to perform the checks carried over from release $3.\emptyset$. ACCEDIT contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETPOSA, SETINST, DUMP - PRINT subroutine

KEYRLG - KEYRLG subroutine

RLGRDQ, RLGRDQF, RLGRDQM, RLGRDQC - RLGRDQ subroutine

POINTQ, POINTQO, POINTQC - POINTQ subroutine

GETCITY, GETCITI, GETCITC - GETCITY subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

INCNTY - INCNTY subroutine

ACCED2 - ACCED2 subroutine

DATEDIT - DATEDIT subroutine

RDACCED - RDACCED subroutine

The HIS33713 Source Module - This module is the ACCED2 subroutine. It performs the edit checks that have been carried over from release $3.\phi$ of HIS. It is called by the ACCEDIT subroutine. It contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

The HIS33714 Source Module - This module is the RDACCED subroutine. It reads the accident edit table into a core array for use by ACCEDIT. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, DUMP - PRINT subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

CHECKDD - CHECKDD subroutine

The HIS33735 Source Module - This module is the mainline program of EDIT. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETPOSA, SETHDG, SETINST, DUMP - PRINT subroutine

ACCRD, ACCRDF, ACCRDC - ACCRD subroutine

ACCEDIT, ACCEDI, ACCEDC - ACCEDIT subroutine

CVTACC, CVTDETB, CVTVEHB - CVTACC subroutine

DATE4 - DATE4 subroutine

The HIS337 $\phi\phi$ Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
	HIS337ØØ	UPDATE, FUNCTION=DELETE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS337 ϕ 1 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ56	CHECKDD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS21Ø16	GETCITY subroutine
*	HIS21Ø18	CNTCITY subroutine
*	HIS21142	INCNTY subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS3Ø1Ø1	KEYRLG subroutine
*	HIS32Ø21	POINTQ interface
	HIS337Ø1	UPDATE, FUNCTION=INSERT mainline
	HIS33712	ACCEDIT subroutine
	HIS33713	ACCED2 subroutine
	HIS33714	RDACCED subroutine
*	HIS33715	CVTACC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS337 ϕ 3 Load Module - The UPDATE, FUNCTION=REWRITE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ56	CHECKDD interface
*	HIS2ØØ58	GETLIST subroutine

(Continued on next page)

	Source Module	Function
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS21Ø16	GETCITY subroutine
*	HIS21Ø18	CNTCITY subroutine
*	HIS21142	INCNTY subroutine
×	HIS3ØØØ1	RLGRDQ subroutine
*	HIS3Ø1Ø1	KEYRLG subroutine
*	HIS32Ø21	POINTQ interface
	HIS337Ø3	UPDATE, FUNCTION=REWRITE mainline
	HIS33712	ACCEDIT subroutine
	HIS33713	ACCED2 subroutine
	HIS33714	RDACCED subroutine
*	HIS33715	CVTACC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS33735 Load Module - The EDIT load module contains the following source modules:

	Source	
	_Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ56	CHECKDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
×	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø16	GETCITY subroutine
*	HIS21Ø18	CNTCITY subroutine
*	HIS21142	INCNTY subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS3Ø1Ø1	KEYRLG subroutine
*	HIS32Ø21	POINTQ interface
*	HIS33Ø91	ACCRD interface
	HIS33712	ACCEDIT subroutine
	HIS33713	ACCED2 subroutine
		RDACCED subroutine
*	HIS33715	CVTACC subroutine
	HIS33735	EDIT mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The Accident Edit Table - The accident edit table is a member of HIS.TABLES used by the ACCEDIT subroutine when performing edit checks. The table specifies, for each error message implemented in ACCEDIT, whether or not the message is a severe error and whether or not the message is disabled. The record format of the accident edit table is:

Columns	Length	Format	Data Element
1-7	7	char(7)	Message number (e.g., ACC-∅21)
8	1	char(1)	Blank
9	1	char (1)	Message type code
1Ø-8Ø	71	char(71)	Unused

The message type codes are:

- S Severe error
- W Warning
- D Disabled

The COPY, CREATE, and REORGANIZE Programs

Source Module	Language	Function	
HIS33102 HIS33103 HIS33720 HIS33721 HIS33722	Assembler Assembler PL/I PL/I PL/I	COPYACC subr CRTACC subro COPY mainlir CREATE mainl REORGANIZE m	outine ne Line
Load Module	Entry Point	Library	Function
HIS3372Ø HIS33721 HIS33722	PLISTART PLISTART PLISTART	HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	COPY CREATE REORGANIZE

The HIS33102 Source Module - This module is the COPYACC subroutine. It prepares a backup copy of the accident detail and vehicle files. When called, a binary fixed (31) variable is passed. A count of the number of accidents copied is returned. The module contains no external references.

The HIS331Ø3 Source Module - This module is the CRTACC subroutine. It reloads the accident detail and vehicle files from a backup copy. A binary fixed(31) variable is passed to CRTACC. A count of the number of accidents loaded is returned. CRTACC contains the following external references:

PRINT, SETINST - PRINT subroutine

The HIS3372Ø Source Module - This module is the mainline program of COPY. It contains the following external references:

PRINTER, PRINT - PRINT subroutine
COPYACC - COPYACC subroutine

The HIS33721 Source Module - This module is the mainline program of CREATE. It contains the following external references:

PRINTER, PRINT - PRINT subroutine
CRTACC - CRTACC subroutine

The HIS33722 Source Module - This module is the mainline program of REORGANIZE. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

COPYACC - COPYACC subroutine

CRTACC - CRTACC subroutine

The HIS33720 Load Module - The COPY load module contains the following source modules:

	Source	
_1	<u>fodule</u>	Function
* H]	[S2ØØ5Ø	PRINT interface
* H	CS2ØØ58	GETLIST subroutine
H)	[S331Ø2	COPYACC subroutine
H	IS3372Ø	COPY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS33721 Load Module - The CREATE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
	HIS331Ø3	CRTACC subroutine
	HIS33721	CREATE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS33722 Load Module - The REORGANIZE load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
	HIS331Ø2	COPYACC subroutine
	HIS331Ø3	CRTACC subroutine
	HIS33722	REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Source Module	Language	Function	
HIS33100 HIS33101 HIS33731	PL/I PL/I PL/I	PRNTDET subro PRNTVEH subro LIST mainline	outine
Load Module	Entry Point	Library	Function
HIS33731	PLISTART	HIS.REL4PTØ	LIST

The HIS33100 Source Module - This module is the PRNTDET subroutine. It prints a formatted listing of an accident detail record, and is called only for LIST= FORMATTED. The module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine
GETDAY - GETDAY subroutine

The HIS331Ø1 Source Module - This module is the PRNTVEH subroutine. It prints a formatted listing of one or more vehicle records, and is called only for LIST=FORMATTED. The module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

The HIS33731 Source Module - This module is the mainline program of LIST. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETHDGS, SETINST - PRINT subroutine

ACCRD, ACCRDF, ACCRDC - ACCRD subroutine

CVTACC, CVTDETB, CVTVEHB - CVTACC subroutine

The HIS33731 Load Module - The LIST load module contains the following source modules:

	Source	
Module		Function
4	HIS2ØØ5Ø	PRINT interface
		PRINI Interface
×	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø1	GETDAY subroutine
*	HIS33Ø91	ACCRD interface
	HIS331ØØ	PRNTDET subroutine
	HIS331Ø1	PRNTVEH subroutine
*	HIS33715	CVTACC subroutine
	HIS33731	LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

Note: When link-editing, include the control statement: INCLUDE SUBRTN4(CVTACC)

The PRINT-MEMOS Program

Source Module	Language	Functio	on
HIS33732 HIS33733	PL/I PL/I	PRINT-MEMOS n PMEMO subrou	
Load Module	Entry Point	Library	Function
HIS33732	PLISTART	HIS.REL4PTØ	PRINT-MEMOS

The HIS33732 Source Module - This module is the mainline program of PRINT-MEMOS. It creates the memos file and then calls PMEMO. It contains the following external references:

SETINST - PRINT subroutine

PMEMO - PMEMO subroutine

The HIS33733 Source Module - This module is the PMEMO subroutine. It sorts the memos file into order by name and prints the memos. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, SETDD - PRINT subroutine

INCNTY - INCNTY subroutine

INCITY - INCITY subroutine

The HIS33732 Load Module - The PRINT-MEMOS load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS20058	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS21142	INCNTY subroutine
	HIS33732	PRINT-MEMOS mainline
	HIS33733	PMEMO subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The RESTART-MEMOS Program

Source

Source			
Module	Language	Function	
HIS33734	PL/I	RESTART-MEMOS	mainline
Load	Entry		
Module	Point	Library	Function
HIS33734	PLISTART	HIS.REL4PTØ	RESTART-MEMOS

The HIS33734 Source Module - This module is the mainline program of RESTART-MEMOS. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, SETDD - PRINT subroutine

INCNTY - INCNTY subroutine

INCITY - INCITY subroutine

The HIS33734 Load Module - The RESTART-MEMOS load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS21142	INCNTY subroutine
	HIS33734	RESTART-MEMOS mainline
	# C4	: NIC CURRENT to allow including by sytematic coll

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

CHAPTER 3

BRIDGE SUBSYSTEM

The bridge subsystem is also known as the HIS35 subsystem. The names of source modules and load modules of the bridge subsystem have the format HIS35xxx where "xxx" is a 3-digit number.

This chapter describes the source modules and load modules of the bridge subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs. Use of the programs and subroutines is described in the other HIS release 4.0 publications.

The BDGRDQ Subroutine

Source Module	Language	Function		
HIS35ØØØ HIS35ØØ1	Assembler Assembler	BDGRDQ subr BDGRDQ inte		
Load Module	Entry Point	Library	Access Name	Function
HIS35ØØØ BDGRDQ	BDGRDQE	HIS.REL4PTØ HIS.SUBRTN4	BDGRDQ	BDGRDQ subroutine BDGRDQ interface

The HIS35000 Source Module - This module is the BDGRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS35001 Source Module - This module is the BDGRDQ interface. It is linked with programs that call BDGRDQ. When called, it retrieves BDGRDQ into storage and passes control to it. The module contains the following external reference:

FETCH - FETCH subroutine

The HIS35000 Load Module - This load module is retrieved by the BDGRDQ interface subroutine when BDGRDQ is needed. It contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
	HIS35ØØØ	BDGRDQ subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The BDGRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of BDGRDQ by automatic call. It consists of the HIS35001 source module.

The BDGINB Subroutine

Source		
Module	Language	Function
HIS35ØØ2	PL/I	BDGINB subroutine

The HIS35 \emptyset \emptyset 2 Source Module - This module is the BDGINB subroutine. It contains no external references.

The BDGRWB Subroutine

Source		
Module	Language	Function
HIS35003	PL/I	BDGRWB Subroutine

The HIS35 $\emptyset\emptyset$ 3 Source Module - This module is the BDGRWB subroutine. It contains no external references.

The BDGRD Subroutine

Module	Language	Function		
HIS35Ø1Ø HIS35Ø11	Assembler Assembler	BDGRD subro BDGRD inter		
Load Module	Entry Point	Library	Access Name	Function
HIS35Ø1Ø BDGRD	BDGRDE	HIS.REL4PTØ HIS.SUBRTN4	BDGRD	BDGRD subroutine BDGRD interface

The HIS35010 Source Module - This module is the BDGRD subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The module contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine SELTEST, SELTESTI, SELTESTC - SELTEST subroutine BDGRDQ, BDGRDQF, BDGRDQR, BDGRDQC - BDGRDQ subroutine

The HIS35Ø11 Source Module - This module is the BDGRD interface. It is linked with programs that call BDGRD. When called, it loads the BDGRD subroutine into storage and passes control to it. The module contains the following external reference:

FETCH - FETCH subroutine

The HIS35010 Load Module - This load module is loaded into storage by the BDGRD interface when BDGRD is needed. It contains the following source modules:

Source Module	<u>Function</u>	
* HIS2ØØ5Ø * HIS2ØØ51 * HIS2ØØ58 * HIS2Ø9Ø5 * HIS22ØØ1 * HIS35ØØ1 HIS35Ø1Ø	PRINT interface FETCH interface GETLIST subroutine PRINTER control section SELTEST interface BDGRDQ interface BDGRD subroutine	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The BDGRD Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of BDGRD by automatic call. It consists of the HIS35Ø11 source module.

The BDRRDQ Subroutine

BDRRDQ

Source
Module Language Function

HIS35020 Assembler BDRRDQ subroutine

Load
Module Library Function

HIS.SUBRTN4

The HIS35 \emptyset 2 \emptyset Source Module - This module is the BDRRDQ subroutine. It contains no external references.

BDRRDQ subroutine

The BDRRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of BDRRDQ by automatic call. It consists of the HIS35020 source module.

The BDGIRTE Subroutine

Source
Module Language Function

HIS35100 Assembler BDGIRTE subroutine

Load
Module Library Function

BDGIRTE HIS.SUBRTN4 BDGIRTE subroutine

The HIS35100 Source Module - This source module is the BDGIRTE subroutine. It contains no external references.

The BDGIRTE Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of BDGIRTE by automatic call. It consists of the HIS351 $\emptyset\emptyset$ source module.

The BDGTYPE Subroutine

Source

Module Language Function

HIS351Ø1 Assembler BDGTYPE subroutine

Load

Module Library Function

BDGTYPE HIS.SUBRTN4 BDGTYPE subroutine

The HIS351Ø1 Source Module - This module is the BDGTYPE subroutine. It contains no external references.

The BDGTYPE Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of BDGTYPE by automatic call. It consists of the HIS35101 source module.

The BDGSRTE Subroutine

Source

Module Language Function

HIS351Ø2 Assembler BDGSRTE subroutine

Load

Module Library Function

BDGSRTE HIS.SUBRTN4 BDGSRTE subroutine

The HIS35102 Source Module - This source module is the BDGSRTE subroutine. It contains no external references.

The BDGSRTE Load Module - The BDGSRTE load module is stored in the HIS.SUBRTN4 library to allow inclusion of BDGSRTE by automatic call. It consists of the HIS35102 source module.

The BDGDLOD Subroutine

Source
Module Language Function

HIS35103 Assembler BDGDLOD Subroutine

Load

Module Library Function

BDGDLOD HIS.SUBRTN4 BDGDLOD subroutine

The HIS351Ø3 Source Module - This source module is the BDGDLOD subroutine. It contains no external references.

The BDGDLOD Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of BDGDLOD by automatic call. It consists of the HIS351Ø3 source module.

The DEFRDI Subroutine

Source
Module Language Function

HIS3511Ø Assembler DEFRDI subroutine

Load

Module Library Function

DEFRDI HIS.SUBRTN4 DEFRDI subroutine

The HIS35110 Source Module - This source module is the DEFRDI subroutine. It contains no external references.

The DEFRDI Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of DEFRDI by automatic call. It consists of the HIS35110 source module.

The DEFPNT Subroutine

Source

Module Language Function

HIS35111 Assembler DEFPNT subroutine

Load

Module Library Function

DEFPNT HIS.SUBRTN4 DEFPNT subroutine

The HIS35111 Source Module - This module is the DEFPNT subroutine. It contains no external references.

The DEFPNT Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of DEFPNT by automatic call. It consists of the HIS35111 source module.

The BDG-INVENTORY-LIST Program

Source Module Function Language PL/I HIS35200 BDG-INVENTORY-LIST mainline Load Entry Library Module Point Function HIS352ØØ PLISTART HIS.REL4PTØ BDG-INVENTORY-LIST

The HIS35200 Source Module - This module is the mainline program of BDG-INVENTORY-LIST. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, SETLINK, SETNEW, DUMP - PRINT subroutine

BDGRDQ, BDGRDQF, BDGRDQR, BDGRDQC - BDGRDQ subroutine
RLGRDQ, RLGRDQF, RLGRDQT, RLGRDQX, RLGRDQL, RLGRDQC - RLGRDQ subroutine
ADT, ADTE, ADTC - ADT subroutine

BDGTYPE - BDGTYPE subroutine

BDGSRTE - BDGSRTE subroutine

The HIS35200 Load Module - The BDG-INVENTORY-LIST load module contains the following source modules:

	Source	
	Module_	Function
*	HIS20050	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS31ØØ1	TRFRDQ interface
*	HIS311Ø1	ADT subroutine
*	HIS32Ø27	DISTB interface
*	HIS35ØØ1	BDGRDQ interface
*	HIS351Ø1	BDGTYPE subroutine
*	HIS351Ø2	BDGSRTE subroutine
	HIS352ØØ	BDG-INVENTORY-LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The DEFENSE-BDG-LIST Program

Source			
Module	Language	Function	
HIS3522Ø	PL/I	DEFENSE-BDG-I	LIST mainline
Load	Entry		
Module	Point	Library	Function
HTS35220	PLISTART	HIS RELAPTØ	DEFENSE-BDG-LIST

The HIS3522Ø Source Module - This module is the DEFENSE-BDG-LIST mainline program. It contains the following external references:

PRINTER, PRINT, SETHDG, DUMP - PRINT subroutine
BDRRDQ, BDRRDQF, BDRRDQC - BDRRDQ subroutine
INCITY - INCITY subroutine

The HIS35220 Load Module - The DEFENSE-BDG-LIST load module contains the following source modules:

Source	
Module	Function
	PRINT interface
HIS2ØØ53	TABLRD interface
HIS2ØØ58	GETLIST subroutine
HIS21Ø12	INCITY subroutine
HIS35 Ø 2Ø	BDRRDQ subroutine
HIS3522Ø	DEFENSE-BDG-LIST mainline
	Module HIS2ØØ5Ø HIS2ØØ53 HIS2ØØ58 HIS21Ø12 HIS35 Ø 2Ø

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The PRE-ATTACK-BDG-TAPE Program

Module	Language	Function	
HIS35221	PL/I	PRE-ATTACK-BI	OG-TAPE mainline
Load Module	Entry Point	Library	Function
HIS35221	PLISTART	HIS.REL4PTØ	PRE-ATTACK-BDG-TAPE

The HIS35221 Source Module - This source module is the mainline program of PRE-ATTACK-BDG-TAPE. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine

BDRRDQ, BDRRDQF, BDRRDQC - BDRRDQ subroutine

DUMPDD - DUMPDD subroutine

The HIS35221 Load Module - The PRE-ATTACK-BDG-TAPE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS35Ø2Ø	BDRRDQ subroutine
	HIS35221	PRE-ATTACK-BDG-TAPE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUM-BY-DESIGN-LOAD Program

Source Module	Language	Function	
HIS35222	PL/I	SUM-BY-DESIGN	W-LOAD mainline
Load	Entry		
Module	<u>Point</u>	Library	Function
HTS35222	PLISTART	HTS.REL4PTØ	SIM-BY-DESTGN-LOAD

The HIS35222 Source Module - This module is the mainline program of SUM-BY-DESIGN-LOAD. It contains the following external references:

PRINTER, PRINT, SETHDG, DUMP - PRINT subroutine BDRRDQ, BDRRDQF, BDRRDQC - BDRRDQ subroutine

The HIS35222 Load Module - The SUM-BY-DESIGN-LOAD load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS35Ø2Ø	BDRRDQ subroutine
	HIS35222	SUM-BY-DESIGN-LOAD mainline

The DEFENSE-MILEAGE Program

Module_	Language	Function	
HIS35223	PL/I	DEFENSE-MILEA	AGE mainline
Load Module	Entry Point	Library	Function
HIS35223	PLISTART	HIS.REL4PTØ	DEFENSE-MILEAGE

The HIS35223 Source Module - This module is the mainline program of DEFENSE-MILEAGE. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
DISTQ, DISTQC - DISTQ subroutine

The HIS35223 Load Module - The DEFENSE-MILEAGE load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ58	GETLIST subroutine
* HIS32Ø25	DISTQ interface
HIS35223	DEFENSE-MILEAGE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The BDG-INSPECTION-TAPE Program

Source Module	Language	Function	
HIS3523Ø	PL/I	BDG-INSPECTIO	ON-TAPE mainline
Load	Entry		
Module	<u>Point</u>	Library	Function
HIS3523Ø	PLISTART	HIS.REL4PTØ	BDG-INSPECTION-TAPE

The HIS3523Ø Source Module - This module is the mainline program of BDG-INSPECTION-TAPE. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine
BDGRDQ, BDGRDQI, BDGRDQP, BDGRDQC - BDGRDQ subroutine
RLGRDQ, RLGRDQI, RLGRDQT, RLGRDQC - RLGRDQ subroutine
ADT, ADTE - ADT subroutine
DISTQ, DISTQC - DISTQ subroutine

The HIS35230 Load Module - The BDG-INSPECTION-TAPE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS31ØØ1	TRFRDQ interface
*	HIS311Ø1	ADT subroutine
*	HIS32Ø25	DISTQ interface
*	HIS32Ø27	DISTB interface
*	HIS35ØØ1	BDGRDQ interface
	HIS3523Ø	BDG-INSPECTION-TAPE mainline

The CREATE-BDGREP Program

Source			
Module	Language	Function	
HIS356ØØ	PL/I	CREATE-BDGREP	mainline
Load Module	Entry Point	Library	Function
Module	FOIIIL	LIDIALY	FUNCTION
HIS356ØØ	PLISTART	HIS.REL4PTØ	CREATE-BDGREP

The HIS35600 Source Module - This module is the CREATE-BDGREP mainline program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

RLGRDQ, RLGRDQF, RLGRDQT, RLGRDQL, RLGRDQC - RLGRDQ subroutine

DISTQ, DISTQO, DISTQC - DISTQ subroutine

BDGRDQ, BDGRDQF, BDGRDQP, BDGRDQX, BDGRDQC - BDGRDQ subroutine

DEFRDI, DEFRDIC - DEFRDI subroutine

BDGSRTE - BDGSRTE subroutine

BDGTYPE - BDGTYPE subroutine

BDGDLOD - BDGDLOD subroutine

ADT,ADTE,ADTC - ADT subroutine

DUMPDD - DUMPDD subroutine

DEFPNT - DEFPNT subroutine

The HIS35600 Load Module - The CREATE-BDGREP load module contains the following source modules:

Source	T
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ57	DUMPDD interface
* HIS2ØØ58	GETLIST subroutine
* HIS30001	RLGRDQ interface
* HIS31001	TRFRDQ interface
* HIS311Ø1	ADT subroutine
* HIS32Ø25	DISTQ interface
* HIS32Ø27	DISTB interface
* HIS35ØØ1	BDGRDQ interface
* HIS351Ø1	BDGTYPE subroutine
* HIS351Ø2	BDGSRTE subroutine
* HIS351Ø3	BDGDLOD subroutine
* HIS3511Ø	DEFRDI subroutine
* HIS35111	DEFPNT subroutine
HIS356ØØ	CREATE-BDGREP mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-BDGREP Program

Source Module	Language	Function	
HIS356Ø1	PL/I	LIST-BDGREP n	nainline
Load	Entry		
Module	Point	Library	Function
HIS356Ø1	PLISTART	HIS.REL4PTØ	LIST-BDGREP

The HIS356Øl Source Module - This source module is the mainline program of LIST-BDGREP. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETHDG, SETINST, SETLINK, DUMP - PRINT subroutine BDRRDQ, BDRRDQF, BDRRDQC - BDRRDQ subroutine

The HIS356Ø1 Load Module - The LIST-BDGREP load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS35Ø2Ø	BDRRDQ subroutine
	HIS356Ø1	LIST-BDGREP mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The DEFENSE-XREF Program

Source			
Module	Language	Function	
HIS3561Ø	PL/I	DEFENSE-XREF	mainline
Load	Entry		
Module	Point	Library	Function
HIS3561Ø	PLISTART	HIS.REL4PTØ	DEFENSE-XREF

The HIS3561 \emptyset Source Module - This module is the mainline program of DEFENSE-XREF. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETNEW, SETINST, DUMP - PRINT subroutine

The HIS35610 Load Module - The DEFENSE-XREF load module contains the following source modules:

Source	
Module	<u>Function</u>
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ58	GETLIST subroutine
HIS3561Ø	DEFENSE-XREF mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE Program

Source Module	Language	Function	
HIS35700 HIS35701 HIS35702 HIS35703 HIS35710 HIS35711 HIS35712	PL/I PL/I PL/I PL/I PL/I PL/I PL/I	UPDATE, FUNCT:	utine
Load Module	Entry Point	Library	Function
HIS357ØØ HIS357Ø1 HIS357Ø2 HIS357Ø3	PLISTART PLISTART PLISTART PLISTART	HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	UPDATE, FUNCTION=DELETE UPDATE, FUNCTION=INSERT UPDATE, FUNCTION=NEW-KEY UPDATE, FUNCTION=REWRITE

The HIS35700 Source Module - This module is the mainline program of the delete function. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine BDGRWB, BDGRWBD, BDGRWBC - BDGRWB subroutine

The HIS357Øl Source Module - This module is the mainline program of the insert function. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine

BDGINB, BDGINBC - BDGINB subroutine

BDGRDC, BDGRDCI - BDGRDC subroutine

BDGCVT - BDGCVT subroutine

BDGEDIT - BDGEDIT subroutine

The HIS35702 Source Module - This module is the mainline program of the new-key function. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine

The HIS357Ø3 Source Module - This module is the mainline program of the rewrite function. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, DUMP - PRINT subroutine

BDGRDCI, BDGRDC - BDGRDC subroutine

BDGRWB, BDGRWBR, BDGRWBC - BDGRWB subroutine

BDGCVT, BDGCVTA - BDGCVT subroutine

BDGEDIT - BDGEDIT subroutine

The HIS3571Ø Source Module - This module is the BDGRDC subroutine. It reads data cards for the mainline programs of the insert and rewrite functions. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The HIS35711 Source Module - This module is the BDGCVT subroutine. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The HIS35712 Source Module - This module is the BDGEDIT subroutine. It performs edit checks on a bridge record. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The HIS357ØØ Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

	Source		
	Module	Function	
*	HIS2ØØ5Ø	PRINT interface	
*	HIS2ØØ58	GETLIST subroutine	
	HIS35ØØ3	BDGRWB subroutine	
	HIS35700	UPDATE.FUNCTION=DELETE	mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS357Ø1 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
	HIS35ØØ2	BDGINB subroutine
	HIS357Ø1	UPDATE, FUNCTION=INSERT mainline
	HIS3571Ø	BDGRDC subroutine
	HIS35711	BDGCVT subroutine
	HIS35712	BDGEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS35702 Load Module - The UPDATE, FUNCTION=NEW-KEY load module contains the following source modules:

Source Module	Function
HIS2ØØ5Ø HIS2ØØ58 HIS357Ø2	PRINT interface GETLIST subroutine UPDATE, FUNCTION=NEW-KEY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS357Ø3 Load Module - The UPDATE, FUNCTION=REWRITE load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
	HIS35ØØ3	BDGRWB subroutine
	HIS357Ø3	UPDATE, FUNCTION=REWRITE mainline
	HIS3571Ø	BDGRDC subroutine
	HIS35711	BDGCVT subroutine
	HIS35712	BDGEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The COPY Program

Source Module	Language	e <u>Function</u>	
HIS3572Ø	Assemble	er COPY main	line
Load Module	Entry Point	Library	Function
HIS3572Ø	COPY	HIS.REL4PTØ	COPY

The HIS3572Ø Source Module - This module is the mainline program of COPY. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
BACKUP - BACKUP subroutine

The HIS3572Ø Load Module - The COPY load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
	HIS3572Ø	COPY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE Program

Source			
<u>Module</u>	Language	Function	
HIS35721	Assemble	r CREATE ma	ainline
Load Module	Entry Point	Library	Function
HIS35721	CREATE	HIS.REL4PTØ	CREATE

The HIS35721 Source Module - This source module is the mainline program of CREATE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
LOAD - LOAD subroutine

The HIS35721 Load Module - The CREATE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø991	LOAD subroutine
	HIS35721	CREATE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The REORGANIZE Program

Source Module	Language	Function	
HIS35722	Assemble	r REORGANI	ZE mainline
Load Module	Entry Point	Library	Function
HIS35722	REORG	HIS.REL4PTØ	REORGANIZE

The HIS35722 Source Module - This module is the mainline program of REORGANIZE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

BACKUP - BACKUP subroutine

LOAD - LOAD subroutine

The HIS35722 Load Module - The REORGANIZE load module contains the following source modules:

Function
PRINT interface
DUMPDD interface
GETLIST subroutine
GETDATE subroutine
PRINTER control section
BACKUP subroutine
LOAD subroutine
REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Source Module	Language	Function	
HIS35731	PL/I	LIST mainline	
Load Module	Entry Point	Library	Function
HIS35731	PLISTART	HIS.REL4PTØ	LIST

The HIS35731 Source Module - This module is the mainline program of LIST. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, SETNEW, SETPOS, DUMP - PRINT subroutine

BDGRD, BDGRDF, BDGRDC - BDGRD subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The HIS35731 Load Module - The LIST load module contains the following source modules:

* HIS2ØØ5Ø	PRINT interface	
* HIS2ØØ51	FETCH interface	* Stored in HIS.SUBRTN4 to allow
* HIS2ØØ53	TABLRD interface	inclusion by automatic call.
* HIS2ØØ58	GETLIST subroutine	includion by accommons and
* HIS35Ø11	BDGRD interface	
HIS35731	LIST mainline	

CHAPTER 4

RAILROAD SUBSYSTEM

The railroad subsystem is also known as the HIS36 subsystem. The names of the source modules and load modules of the railroad subsystem have names of the format HIS36xxx, where xxx is a 3-digit number.

This chapter describes each of the source modules and load modules of the railroad subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining the programs. Use of the programs and subroutines is described in the other HIS Release $4.\emptyset$ manuals.

The RRXRDQ Subroutine

Source Module	Language	Function		
HIS36ФФФ HIS36ФФ1	Assembler Assembler	RRXRDQ subroutine RRXRDQ interface		
Load Module	Entry Point	Library	Access Name	Function
HIS36ØØØ RRXRDQ	RRXRDQE	HIS.REL4PTØ HIS.SUBRTN4	RRXRDQ	RRXRDQ subroutine RRXRDQ interface

The HIS36 $\phi\phi\phi$ Source Module - This source module is the RRXRDQ subroutine. It is designed as a dynamic subroutine - one that is loaded into core when needed rather than link-edited with the calling program. The source module is stored only in the HIS36 $\phi\phi\phi$ load module so that only one link-edit is needed if the source module is altered. This source module has no external references.

The HIS36 ϕ 01 Source Module - This source module is the RRXRDQ interface. It is link-edited with programs that call RRXRDQ. When called, it loads the RRXRDQ subroutine into core and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The HIS36 $\phi\phi\phi$ Load Module - This load module contains the HIS36 $\phi\phi\phi$ source module (RRXRDQ subroutine).

The RRXRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS36 $\phi\phi$ 1 source module.

The RRXINB Subroutine

Source

Module Language Function

HIS36ØØ2 Assembler RRXINB subroutine

The HIS36 $\phi\phi$ 2 Source Module - This source module is the RRXINB subroutine. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
GETDATE - GETDATE subroutine

The RRXRWB Subroutine

Source
Module Language Function

The HIS36 $\phi\phi$ 3 Source Module - This source module is the RRXRWB subroutine. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

GETDATE - GETDATE subroutine

HIS36003 Assembler RRXRWB subroutine

The RRXRD Subroutine

Source

Module	Language	Function		
HIS36Ø1Ø HIS36Ø11	Assembler Assembler	RRXRD subrou RRXRD interf		
Load Module	Entry Point	Library	Access Name	Function
HIS36Ø1Ø RRXRD	RRXRDQE	HIS.REL4PTØ HIS.SUBRTN4	RRXRD	RRXRD subroutine RRXRD interface

The HIS36 ϕ 1 ϕ Source Module - This source module is the RRXRD subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program. The source module resides in only one load module so that only one link-edit is necessary if the source module is modified. The source module has the following external references:

PRINTER, PRINT, SETINST - PRINT subroutine

SELTEST, SELTESTI - SELTEST subroutine

RRXRDQ, RRXRDQF, RRXRDQR, RRXRDQC - RRXRDQ subroutine

The HIS36 \emptyset 11 Source Module - This source module is the RRXRD interface. It is link-edited with programs that call RRXRD. When called, it loads the RRXRD subroutine into core and passes control to it. The source module contains the following external references:

FETCH - FETCH subroutine

The HIS36 ϕ 1 ϕ Load Module - This load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ58	GETLIST subroutine
* HIS2Ø9Ø5	PRINTER control section
* HIS22ØØ1	SELTEST interface
* HIS36ØØ1	RRXRDQ interface
HIS36Ø1Ø	RRXRD subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The RRXRD Load Module - This module is stored in the HIS.SUBRTN4 library. When link-editing, it is retrieved by automatic call. It contains the HIS36 ϕ 11 source module.

The RRRWRQ Subroutine

Source		
Module	Language	Function
HIS36022	Assembler	RRRWRO subroutine

The HIS36 ϕ 22 Source Module - This source module is the RRRWRQ subroutine. The source module contains no external references.

The CREATE-RRXREP Program

Source			
Module	Language	Function	
HIS366ØØ	PL/I	CREATE-RRXREP	mainline
Load	Entry		
Module	<u>Point</u>	Library	Function
HIS366ØØ	PLISTART	HIS.REL4PTØ	CREATE-RRXREP

The HIS366 $\phi\phi$ Source Module - This source module is the mainline program of CREATE-RRXREP. It contains the following external references:

PRINT, DUMP - PRINT subroutine

RLGRDQ, RLGRDQI, RLGRDQL, RLGRDQT, RLGRDQC - RLGRDQ subroutine

TRMRDQ,TRMRDQC - TRMRDQ subroutine

RRXRDQ,RRXRDQI - RRXRDQ subroutine

RRRWRQ,RRRWRQC - RRRWRQ subroutine

ADT, ADTE, ADTC - ADT subroutine

INCNTY - INCNTY subroutine

The HIS366 $\phi\phi$ Load Module - The CREATE-RRXREP load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ53	TABLRD interface
* HIS2ØØ58	GETLIST interface
* HIS2Ø9Ø5	PRINTER control section
* HIS21142	INCNTY subroutine
* HIS3ØØØ1	RLGRDQ interface
* HIS311Ø1	ADT subroutine
* HIS32ØØ1	TRMRDQ interface
* HIS36ØØ1	RRXRDQ interface
HIS36Ø22	RRRWRQ subroutine
HIS366ØØ	CREATE-RRXREP mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The RRXREP-SORT-&-LIST Program

Source Module	Language	Function	
HIS3662Ø	Assembler	RRXREP-SORT-&	-LIST mainline
Load	Entry		
Module	Point	Library	Function
HIS3662Ø	RFXSL	HIS.REL4PTØ	RRXREP-SORT-&-LIST

The HIS3662Ø Source Module - This source module is the mainline program of RRXREP-SORT-&-LIST. It contains the following external references:

PRINT,PRINTER,SETHDGS,SETINST - PRINT subroutine

The HIS36620 Load Module - The RRXREP-SORT-&-LIST load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2Ø9Ø5	PRINTER control section
* HIS2ØØ58	GETLIST subroutine
HIS3662Ø	RRXREP-SORT-&-LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE Programs

Source Module	Language	Function
HIS367ØØ	PL/I	UPDATE, FUNCTION=DELETE mainline
HIS367Ø1	PL/I	UPDATE, FUNCTION=INSERT mainline
HIS367Ø2	PL/I	UPDATE, FUNCTION=NEW-KEY mainline
HIS367Ø3	PL/I	UPDATE, FUNCTION=REWRITE mainline
HIS3671Ø	PL/I	RRXRDC subroutine
HIS36711	PL/I	RRXCVT subroutine
HIS36712	PL/I	RRXEDIT subroutine

Load Module	Entry Point	Library	Function
HIS367ØØ HIS367Ø1 HIS367Ø2	PLISTART PLISTART PLISTART	HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	UPDATE, FUNCTION=DELETE UPDATE, FUNCTION=INSERT UPDATE, FUNCTION=NEW-KEY
HIS367Ø3	PLISTART	HIS.REL4PTØ	UPDATE, FUNCTION=REWRITE

The HIS367 $\phi\phi$ Source Module - This source module is the mainline program for the delete function. It contains the following external references:

SETINST, SETHDGS, PRINTA, PRINT - PRINT subroutine RRXRWB, RRXRWBD, RRXRWBC - RRXRWB subroutine

The HIS367 ϕ 1 Source Module - This source module is the mainline program for the insert function. It contains the following external references:

SETINST, SETHDGS, PRINT - PRINT subroutine

RRXINB, RRXINBC - RRXINB subroutine

RRXRDC, RRXRDCI - RRXRDC subroutine

RRXCVT - RRXCVT subroutine

RRXEDIT - RRXEDIT subroutine

The HIS367 ϕ 2 Source Module - This source module is the mainline program for the new-key function. It contains the following external references:

SETINST, SETHDGS, PRINTA, PRINT - PRINT subroutine RRXINB, RRXINBC, RRXINBN - RRXINB subroutine

The HIS367Ø3 Source Module - This source module is the mainline program for the rewrite function. It contains the following external references:

SETINST, SETPOSA, SETHDGS, PRINT - PRINT subroutine

REWRITE, REWRITF - REWRITE subroutine

RRXRDC, RRXRDCI - RRXRDC subroutine

RRXCVT, RRXCVTA - RRXCVT subroutine

RRXRWB, RRXRWBC, RRXRWBR - RRXRWB subroutine

RRXEDIT - RRXEDIT subroutine

The HIS3671Ø Source Module - RRXRDC reads railroad data cards for the update programs. The calling program first calls entry point RRXRDCI passing a char(8) ddname to use when opening the file. Subsequently the RRXRDC entry point is called passing a pointer. An A-B-C card sequence is read and returned as a "data string" pointed to by the pointer. The format of the data string is provided with the description of the RRXCVT subroutine in the publication Highway Information System Release 4.Ø Record Formats and Subroutines. The source module has the following external reference:

PRINT - PRINT subroutine

The HIS36711 Source Module - This source module is the RRXCVT subroutine. It contains the following external reference:

PRINT - PRINT subroutine

The HIS36712 Source Module - This source module is the RRXEDIT subroutine. It performs edit checks on a railroad record. When called, a pointer to a railroad record and a binary fixed(15) return code are passed. Return codes are:

 \emptyset No errors or warnings detected other The return code is the number of errors or warnings The source module contains the following external references:

PRINT, PRINTA - PRINT subroutine

DATEDIT - DATEDIT subroutine

The HIS367 $\phi\phi$ Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

	Source	
	<u>Module</u>	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
	HIS36ØØ3	RRXRWB subroutine
	HIS367ØØ	UPDATE, FUNCTION=DELETE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS367Ø1 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

	Source	
	Module	Function
;	* HIS2ØØ5Ø	PRINT interface
;	* HIS2ØØ58	GETLIST subroutine
1	* HIS2Ø9Ø2	GETDATE subroutine
;	* HIS2Ø9Ø3	DATEDIT subroutine
;	* HIS2Ø9Ø5	PRINTER control section
	HIS36ØØ2	RRXINB subroutine
	HIS367Ø1	UPDATE, FUNCTION=INSERT mainline
	HIS3671Ø	RRXRDC subroutine
	HIS36711	RRXCVT subroutine
	HIS36712	RRXEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS367 ϕ 2 Load Module - The UPDATE, FUNCTION=NEW-KEY load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
×	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
	HIS36ØØ2	RRXINB subroutine
	HIS367Ø2	UPDATE, FUNCTION=NEW-KEY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS367 ϕ 3 Load Module - The UPDATE, FUNCTION=REWRITE load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS21Ø65	REWRITE subroutine
	HIS36ØØ3	RRXRWB subroutine
	HIS367Ø3	UPDATE, FUNCTION=REWRITE mainline
	HIS3671Ø	RRXRDC subroutine
	HIS36711	RRXCVT subroutine
	HIS36712	RRXEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The COPY Program

Module_	Language	Function	
HIS3672Ø	Assembler	COPY mainline	
Load	Entry		
_Module	Point	Library	Function
HIS3672Ø	COPY	HIS.REL4PTØ	COPY

The HIS3672 ϕ Source Module - This source module is the COPY mainline. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

BACKUP - BACKUP subroutine

The HIS36720 Load Module - The COPY load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ57	DUMPDD interface
* HIS2ØØ58	GETLIST subroutine
* HIS2Ø9Ø2	GETDATE subroutine
* HIS2Ø9Ø5	PRINTER control section
* HIS2Ø99Ø	BACKUP subroutine
HIS3672Ø	COPY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE Program

Source			
Module	Language	Function	
HIS36721	Assembler	CREATE mainli	ne
Load	Entry		
Module_	Point	Library	Function
HIS36721	CREATE	HIS.REL4PTØ	CREATE

The HIS36721 Source Module - This source module is the mainline program of CREATE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
LOAD - LOAD subroutine

The HIS36721 Load Module - The CREATE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø991	LOAD subroutine
	HIS36721	CREATE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The REORGANIZE Program

Language	Function	
0.0.		
Assembler	REORGANIZE max	inline
Entry		
Point	Library	Function
REORG	HIS.REL4PTØ	REORGANIZE
	Entry Point	Assembler REORGANIZE man

The HIS36722 Source Module - This source module is the mainline program of REORGANIZE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

BACKUP - BACKUP subroutine

LOAD - LOAD subroutine

The HIS36722 Load Module - The REORGANIZE load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
*	HIS2Ø991	LOAD subroutine
	HIS36722	REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Source			
Module	Language	Function	
HIS36731	PL/I	LIST mainline	
Load	Entry		
Module	Point	Library	Function
HIS36731	PLISTART	HIS.REL4PTØ	LIST

The HIS36731 Source Module - This source module is the mainline program of LIST. It contains the following external references:

SETPOS, SETHDGS, PRINT, SETINST, DUMP - PRINT subroutine
RRXRD, RRXRDF, RRXRDC - RRXRD subroutine

The HIS36731 Load Module - The LIST load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS22ØØ1	SELTEST interface
	HIS36ØØ1	RRXRDQ interface
	HIS36Ø11	RRXRD interface
	HIS36731	LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.



CHAPTER 5

ROADLOG SUBSYSTEM

The roadlog subsystem is also known as the HIS3 \emptyset subsystem. The names of all source modules and load modules have the format HIS3 \emptyset xxx, where xxx is a 3-digit number.

This chapter describes each of the source modules and load modules of the roadlog subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs. Use of the programs and subroutines are described in the other HIS Release 4.0 manuals.

The RLGRDQ Subroutine

Source Module	Language	Function		
HIS30000 HIS30001	Assembler Assembler	RLGRDQ sub RLGRDQ inte		
Load <u>Module</u>	Entry Point	Library	Access Name	Function
HIS3ØØØØ RLGRDQ	RLGRDQE	HIS.REL4PTØ HIS.SUBRTN4	RLGRDQ	RLGRDQ subroutine RLGRDQ interface

The HIS30000 Source Module - HIS30000 is the RLGRDQ roadlog sequential-read subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program). This source module resides in only one load module (HIS30000) so that only one link-edit is needed when this source module is modified. The HIS30000 source module has these external references:

PRINT, PRINTER, DUMP - PRINT subroutine

The HIS30001 Source Module - HIS30001 is link-edited with programs that call RLGRDQ. The first time it is called during a run, it retrieves the subroutine using an access name of RLGRDQ. It then passes control to the proper entry point of the subroutine. During subsequent calls, it merely passes control to the subroutine. HIS30001 has these external references:

FETCH - FETCH subroutine

The HIS30000 Load Module - This load module contains the dynamic RLGRDQ subroutine. It contains these source modules:

Source Module	Function	
* HIS2ØØ5Ø * HIS2ØØ58 * HIS2Ø9Ø5 HIS3ØØØØ	PRINT interface GETLIST subroutine PRINTER control section RLGRDQ subroutine	* Stored in HIS.SUBRTN4 for inclusion by automatic call.

The RLGRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS3 $\emptyset\emptyset\emptyset$ 1 source module (RLGRDQ interface).

The RLGINB Subroutine

Source		
<u>Module</u>	Language	Function
HIS3ØØØ2	Assembler	RLGINB subroutine

The HIS30002 Source Module - HIS30002 is the RLGINB subroutine. It must be link-edited with any program that uses it. Because of its limited usage, it is not stored in the HIS.SUBRTN4 library. If it is needed, it must be compiled and its object module used in the link-edit step. The source module has these external references:

PRINTER, PRINT, DUMP - PRINT subroutine GETDATE - GETDATE subroutine

The RLGRWB Subroutine

Source		
Module	Language	Function
HTS30003	Assembler	RLGRWB subroutine

The HIS30003 Source Module - HIS30003 is the RLGRWB subroutine. It must be link-edited with any program that uses it. The comments and external references are the same as the HIS30002 source module above.

The RLGRD Subroutine

Source Module	Language	Function		
HIS3ØØ1Ø HIS3ØØ11	Assembler Assembler	RLGRD subro		
Load Module	Entry Point	Library	Access Name	Function
HIS3ØØ1Ø RLGRD	RLGRDE	HIS.REL4PTØ HIS.SUBRTN4	RLGRD	RLGRD subroutine RLGRD interface

The HIS30010 Source Module - HIS30010 is the RLGRD subroutine. It is designed as a dynamic subroutine (one that is loaded into core when called rather than link-edited with the calling program). The source module resides in only one load module so that only one link-edit is necessary if the source module is modified. The source module has these external references:

PRINTER, PRINT, DUMP - PRINT subroutine

SELTEST, SELTESTI, SELTESTC - SELTEST subroutine

SETINST - PRINT subroutine

RLGRDQ, RLGRDQF, RLGRDQT, RLGRDQC, RLGRDQX - RLGRDQ subroutine

The HIS30011 Source Module - HIS30011 is the RLGRD interface. It is link-edited with programs that call RLGRD. When called, it retrieves the RLGRD dynamic subroutine load module and passes control to it. It has these external references:

FETCH - FETCH subroutine

The HIS30010 Load Module - This load module contains the RLGRD dynamic subroutine. It contains the following source modules:

n
,

^{*} Stored in HIS.SUBRTN4 for inclusion by automatic call.

The RLGRD Load Module - This module is stored in the HIS.SUBRTN4 library. When link-editing, it is retrieved by automatic call. It contains the HIS30011 source module.

The COINKEY Subroutine

Source Module	Language	Function
HIS3Ø1ØØ	Assembler	COINKEY subroutine
Load Module	Library	Function
COINKEY	HIS.SUBRTN4	COINKEY subroutine

The HIS3Ø1ØØ Source Module - This source module is the COINKEY subroutine. It must be link-edited with any program that calls COINKEY. The source module has no external references.

The COINKEY Load Module - The COINKEY load module of the HIS.SUBRTN4 library enables COINKEY to be included by the automatic call facility of the link-editor. The load module contains the HIS30100 source module.

The KEYRLG Subroutine

Source		
Module	Language	Function
HIS3Ø1Ø1	PL/I	KEYRLG subroutine

Load
Module Library Function

KEYRLG HIS.SUBRTN4 KEYRLG subroutine

The HIS30101 Source Module - This source module is the KEYRLG subroutine. It must be link-edited with any program that calls KEYRLG. The source module contains these external references:

PRINTER, PRINT, SETPOS, DUMP - PRINT subroutine
RLGRDQ, RLGRDQF, RLGRDQT, RLGRDQC - RLGRDQ subroutine

The KEYRLG Load Module - The KEYRLG load module of HIS.SUBRTN4 allows the link-editor to include KEYRLG by automatic call. The load module contains the source module HIS30101.

The RLGCVT Subroutine

Source
Module Language Function

HIS3Ø711 PL/I RLGCVT subroutine

Load
Module Library Function

RLGCVT HIS.SUBRTN4 RLGCVT subroutine

The HIS3Ø711 Source Module - This source module is the RLGCVT subroutine. It must be link-edited with any program that calls RLGCVT. The source module contains these external references:

INCITY - INCITY subroutine
INPROJ - INPROJ subroutine

The RLGCVT Load Module - The RLGCVT load module of HIS.SUBRTN4 allows the link-editor to include RLGCVT by automatic call. The load module contains the source module HIS3Ø711.

The LIST-&-SUM Program

Source			
Module	Language	Function	
HIS3Ø2ØØ	PL/I	LIST-&-SUM ma	inline
Load	Entry		
Module	Point	Library	Function
HIS3Ø2ØØ	PLISTART	HIS.REL4PTØ	LIST-&-SUM

The HIS30200 Source Module - This source module is the mainline program of LIST-&-SUM. It has the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETHDGS, SETLINK - PRINT subroutine

INCITY - INCITY subroutine

INCNTY - INCNTY subroutine

COINKEY - COINKEY subroutine

RLGRD, RLGRDC, RLGRDF, RLGRDX, RLGRDT, RLGRDZ - RLGRD subroutine

CVTSURF - CVTSURF subroutine

The HIS3 $\emptyset2\emptyset\emptyset$ Load Module - The HIS3 $\emptyset2\emptyset\emptyset$ load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
	HIS20051	FETCH interface
	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS21Ø42	CVTSURF subroutine
*	HIS21142	INCNTY subroutine
*	HIS3ØØ11	RLGRD interface
*	HIS3Ø1ØØ	COINKEY subroutine
	HIS3Ø2ØØ	LIST-&-SUM mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUMMARY-BY-ROUTES Program

Source			
<u>Module</u>	Language	Function	
HIS3Ø2Ø1	PL/I	SUMMARY-BY-RO	OUTES mainline
Load	Entry		
<u>Module</u>	Point	Library	Function
HIS3Ø2Ø1	PLISTART	HIS.REL4PTØ	SUMMARY-BY-ROUTES

The HIS30201 Source Module - This source module is the mainline program of SUMMARY-BY-ROUTES. It has the following external references:

PRINTER, PRINT, SETINST, SETHDG, DUMP - PRINT subroutine RLGRDQ, RLGRDQC, RLGRDQI, RLGRDQT - RLGRDQ subroutine

The HIS30201 Load Module - The HIS30201 load module contains the following source modules:

	Source Module	Function	
*	HIS2ØØ51 HIS2ØØ58 HIS3ØØØ1	PRINT interface FETCH interface GETLIST subroutine RLGRDQ interface SUMMARY-BY-ROUTES mainline	Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SURF-TYPE Program

Source			
Module	Language	Function	
HIS3Ø2Ø2	PL/I	SURF-TYPE mai	inline
HIS3Ø2Ø3	PL/I	SURF-TYPE SUF	RTYPA
HIS3Ø2Ø4	PL/I	SURF-TYPE SUF	RTYPB
HIS3Ø2Ø5	PL/I	SURF-TYPE SUF	RTYPC
Load	Entry		
Module	Point	Library	Function
HIS30202	PLISTART	HIS.REL4PTØ	SURF-TYPE

The HIS3Ø2Ø2 Source Module - This source module is the mainline program of SURF-TYPE. It decides whether, for the options specified on the command, to use the SURF-TYPE algorithm of SURTYPA or that of SURTYPB, and calls the appropriate algorithm. The SURTYPA algorithm is used if SUMMARY=RTE-NO was specified on the command and if DATA=ILOOP was not specified. The SURTYPB algorithm is used in all other cases. The source module has these external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine

SURTYPA - SURF-TYPE SURTYPA subroutine

SURTYPB - SURF-TYPE SURTYPB subroutine

The HIS30203 Source Module - This source module is the SURTYPA subroutine of SURF-TYPE. It performs calculations for the surface type summary when producing a summary by route number except when producing the interstate loop summary by route number. It has these external references:

PRINTER, PRINT, SETHDG - PRINT subroutine
RLGRD, RLGRDF, RLGRDC - RLGRD subroutine
INCITY - INCITY subroutine
CVTSURF - CVTSURF subroutine
SURTYPC - SURF-TYPE SURTYPC subroutine

When SURTYPA is called, the following arguments are passed:

- 1. Urban indicator char(1):
 - U MILEAGE=URBAN
 - A MILEAGE=ALL

blank No MILEAGE parameter

- 2. System indicator char(1) From position 8 of instruction
- 3. Starting key char(15) From startkey portion of DATA parameter
- 4. Ending key char(15) From endkey portion of DATA parameter

The HIS30204 Source Module - This source module is the SURTYPB subroutine of SURF-TYPE. It performs calculations for the surface type summaries except in the cases where SURTYPA performs the calculations. The source module has the external references:

PRINTER, PRINT, SETHDG - PRINT subroutine

RLGRD, RLGRDF, RLGRDX, RLGRDC - RLGRD subroutine

CVTPROJ - CVTPROJ subroutine

INCITY - INCITY subroutine

COINKEY - COINKEY subroutine

CVTSURF - CVTSURF subroutine

SURTYPC - SURF-TYPE SURTYPC subroutine

When SURTYPB is called, the following arguments are passed:

- 1. Summary number binary fixed(15):
 - 1 SUMMARY=RTE-NO
 - 2 SUMMARY=PROJ-#
 - 3 SUMMARY=COUNTY
 - 4 SUMMARY=CITIES
 - 5 SUMMARY=YR-BLT
 - 6 SUMMARY=SUR-WD
 - 7 SUMMARY=YR-IMP
- 2-5. Like arguments 1-4 of SURTYPA.

The HIS30205 Source Module - This source module performs the print-out of values computed by SURTYPA and SURTYPB. It contains the following external references:

PRINTER, PRINT, SETPOSA - PRINT subroutine

When SURTYPC is called, a char(160) variable is passed. The first 20 characters contain the row heading. The remainder contains an (9,2) array of pic'zzzzvzzz' values. The elements in (*,1) are values for a rural line. The elements in (*,2) are values for a municipal line. A line is printed for each if the total figure is non-zero. If both lines are non-zero, a total line is computed and printed.

The HIS30202 Load Module - The SURF-TYPE load module contains the following source modules:

	Source Module	Function	
* * * * * * * *	HIS20050 HIS20051 HIS20053 HIS20058 HIS21012 HIS21032 HIS21033 HIS21042 HIS21142 HIS30011 HIS30100 HIS30202 HIS30203 HIS30204 HIS30205	PRINT interface FETCH interface TABLRD interface GETLIST subroutine INCITY subroutine INPROJ subroutine CVTPROJ subroutine CVTSURF subroutine INCNTY subroutine INCNTY subroutine RLGRD interface COINKEY subroutine SURF-TYPE mainline SURF-TYPE SURTYPA SURF-TYPE SURTYPB SURF-TYPE SURTYPC	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUMMARY-BY-LOCATION Program

Source Module	Language	Function	
HIS3Ø2Ø6 HIS3Ø2Ø7 HIS3Ø2Ø8 HIS3Ø2Ø9	PL/I PL/I PL/I PL/I		
Load Module	Entry Point	Library	Function CARTON
HIS3Ø2Ø6	PLISTART	HIS.REL4PTØ	SUMMARY-BY-LOCATION

The HIS3Ø2Ø6 Source Module - This source module is the mainline program of SUMMARY-BY-LOCATION. It determines which of the three slave programs to call for the specified DATA parameter. SUMLOCI is called for DATA=INTERSTATE. SUMLOCC is called for DATA=INTERSTATE+PRIMARY. SUMLOCS is called for DATA= SECONDARY. The source module contains these external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine

SUMLOCI, SUMLOCS - SUMMARY-BY-LOCATION subroutines

The HIS3Ø2Ø7 Source Module - This module is called by the SUMMARY-BY-LOCATION mainline when DATA=INTERSTATE is specified. No arguments are passed to SUMLOCI. It contains the following external references:

PRINTER, PRINT, SETHDG - PRINT subroutine

RLGRDQ, RLGRDQI, RLGRDQT, RLGRDQC - RLGRDQ subroutine

The HIS3Ø2Ø8 Source Module - This module is called by the SUMMARY-BY-LOCATION mainline when DATA=INTERSTATE+PRIMARY is specified. No arguments are passed to SUMLOCC. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG - PRINT subroutine

RLGRDQ, RLGRDQI, RLGRDQP, RLGRDQX, RLGRDQC - RLGRDQ subroutine

INCITY - INCITY subroutine

COINKEY - COINKEY subroutine

The HIS30209 Source Module - SUMLOCS is called by the SUMMARY-BY-LOCATION mainline when DATA=SECONDARY is specified. No arguments are passed. It contains the following external references:

PRINTER, PRINT, SETHDG - PRINT subroutine
RLGRDQ, RLGRDQI, RLGRDQC - RLGRDQ subroutine

The HIS30206 Load Module - The SUMMARY-BY-LOCATION load module contains the following source modules:

	Source Module	Function		
*	HIS20050	PRINT interface		
*	HIS20051	FETCH interface	*	Stored in HIS.SUBRTN4 to
*	HIS2ØØ53	TABLRD interface		allow inclusion by automatic
*	HIS2ØØ58	GETLIST subroutine		call.
*	HIS21142	INCITY subroutine		
*	HIS3ØØØ1	RLGRDQ interface		
*	HIS3Ø1ØØ	COINKEY subroutine		
	HIS3Ø2Ø6	SUMMARY-BY-LOCATION	mainline	
	HIS3Ø2Ø7	SUMMARY-BY-LOCATION	SUMLOCI	
	HIS3Ø2Ø8	SUMMARY-BY-LOCATION	SUMLOCC	
	HIS3Ø2Ø9	SUMMARY-BY-LOCATION	SUMLOCS	

The FORHWY-SUMMARY Program

Source Module	Language	Function	
HIS3Ø21Ø HIS3Ø211 HIS3Ø212	PL/I PL/I PL/I	FORHWY-SUMMAR FORHWY-SUMMAR FORHWY-SUMMAR	RY FORHWYL
Load Module	Entry Point	Library	Function
HIS3Ø21Ø	PLISTART	HIS.REL4PTØ	FORHWY-SUMMARY

The HIS30210 Source Module - This source module is the FORHWY-SUMMARY mainline program. It determines whether to call FORHWYL or FORHWYS. FORHWYL is called if FH-SUMMARY=LOCATION is specified. FORHWYS is called if FH-SUMMARY= SURF-TYPE is specified. It has these external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine FORHWYL, FORHWYS - FORHWY-SUMMARY subroutines

The HIS30211 Source Module - FORHWYL is called by the FORHWY-SUMMARY mainline when FH-SUMMARY=LOCATION is specified. No arguments are passed. FORHWYL contains these external references:

PRINTER, PRINT, SETHDG - PRINT subroutine
RLGRDQ, RLGRDQI, RLGRDQC - RLGRDQ subroutine

The HIS3Ø212 Source Module - FORHWYS is called by the FORHWY-SUMMARY mainline when FH-SUMMARY-SURF-TYPE is specified. No arguments are passed. FORHWYS contains these external references:

PRINTER, PRINT, SETHDG - PRINT subroutine
RLGRDQ, RLGRDQI, RLGRDQC - RLGRDQ subroutine
CVTSURF - CVTSURF subroutine

The HIS30210 Load Module - The FORHWY-SUMMARY load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø42	CVTSURF subroutine
*	HIS30001	RLGRDQ interface
	HIS3Ø21Ø	FORHWY-SUMMARY mainline
	HIS3Ø211	FORHWY-SUMMARY FORHWYL
	HIS3Ø212	FORHWY-SUMMARY FORHWYS

^{*} Stored in HIS.SUBRTN4 for inclusion by automatic call.

The STATE-MILEAGE-502 Program

Module_	Language	Function	
HIS3Ø3ØØ	PL/I	STATE-MILEAGE	E-5Ø2 mainline
Load	Entry	7.11	T
Module	Point	Library	Function
HIS3Ø3ØØ	PLISTART	HIS.REL4PTØ	STATE-MILEAGE-502

The HIS3 \emptyset 3 \emptyset \emptyset Source Module - This source module is the mainline program of STATE-MILEAGE-5 \emptyset 2. It has these external references:

PRINTER, PRINT, SETHDG, SETINST - PRINT subroutine

SETHDGS - PRINT subroutine

RLGRD, RLGRDF, RLGRDT, RLGRDC - RLGRD subroutine

INCITY - INCITY subroutine

The HIS3Ø3ØØ Load Module - The STATE-MILEAGE-5Ø2 load module contains the following source modules:

	Source	
	<u>Module</u>	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS3ØØ11	RLGRD interface
	HIS3Ø3ØØ	STATE-MILEAGE-502 mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call

The STATE-MILEAGE-505 Program

Source			
Module	Language	Function	
HIS3Ø3Ø1	PL/I	STATE-MILEAGE	E-5Ø5 mainline
Load	Entry		
Module	Point	Library	Function
HIS3Ø3Ø1	PLISTART	HIS.REL4PTØ	STATE-MILEAGE-505

The HIS3Ø3Ø1 Source Module - This source module is the mainline program of STATE-MILEAGE-5Ø5. It has the following external references:

PRINTER, PRINT, SETPOS, PRINTA, SETHDGS, SETINST, DUMP - PRINT subroutine

RLGRD, RLGRDF, RLGRDT, RLGRDC - RLGRD subroutine

TRFRDQ, TRFRDQI, TRFRDQC - TRFRDQ subroutine

INCITY - INCITY subroutine

The HIS3Ø3Ø1 Load Module - The STATE-MILEAGE-5Ø5 load module contains the following source modules:

Source	
Module	Function
* HIS20050	PRINT interface
* HIS20051	FETCH interface
* HIS2ØØ53	TABLRD interface
* HTC20058	CETLIST subroutine

	Source	
	Module	Function
*	HIS21Ø12	INCITY subroutine
*	HIS3ØØ11	RLGRD interface
	HIS3Ø3Ø1	STATE-MILEAGE-505 mainline
*	HIS31ØØ1	TRFRDQ interface

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The STATE-MILEAGE-506 Program

Source Module	Language	Function	
HIS3Ø3Ø2	PL/I	STATE-MILEAGE	E-506 mainline
Load	Entry	Library	Euration
<u>Module</u>	<u>Point</u>	Library	Function
HIS3Ø3Ø2	PLISTART	HIS.REL4PTØ	STATE-MILEAGE-5Ø6

The HIS3Ø3Ø2 Source Module - This source module is the mainline program of STATE-MILEAGE-5Ø6. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

RLGRD, RLGRDF, RLGRDT, RLGRDC - RLGRD subroutine

TRFRDQI, TRFRDQC, TRFRDQ - TRFRDQ subroutine

INCITY - INCITY subroutine

The HIS3Ø3Ø2 Load Module - The STATE-MILEAGE-5Ø6 load module contains the following source modules:

	Source Module	Function
		PRINT interface
	, ,	FETCH interface * Stored in HIS.SUBRTN4 to allow
*	HIS2ØØ53	TABLRD interface inclusion by automatic call.
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS3ØØ11	RLGRD interface
	HIS3Ø3Ø2	STATE-MILEAGE-506 mainline
*	HTS31001	TRFRDO interface

The UPDATE and EDIT Programs

Source Module	Language	Function	
HIS3Ø7ØØ HIS3Ø7Ø1 HIS3Ø7Ø2 HIS3Ø7Ø3 HIS3Ø71Ø HIS3Ø712 HIS3Ø735	PL/I PL/I PL/I PL/I PL/I PL/I PL/I	UPDATE, FUNCT	C DIT RLGEDIT
Load Module	Entry Point	Library	Function
HIS3Ø7ØØ HIS3Ø7Ø1 HIS3Ø7Ø2 HIS3Ø7Ø3 HIS3Ø735	PLISTART PLISTART PLISTART PLISTART PLISTART	HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	UPDATE, FUNCTION=DELETE UPDATE, FUNCTION=INSERT UPDATE, FUNCTION=NEW-KEY UPDATE, FUNCTION=REWRITE EDIT

The HIS30700 Source Module - This source module is the mainline program for UPDATE, FUNCTION=DELETE. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDGS, SETINST, DUMP - PRINT subroutine

RLGRWB, RLGRWBD, RLGRWBC - RLGRWB subroutine

DUMPDD - DUMPDD subroutine

The HIS30701 Source Module - This source module is the mainline program for UPDATE, FUNCTION=INSERT. It contains the following external references:

PRINTER, PRINT, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

RLGINB, RLGINBC - RLGINB subroutine

RLGRDC, RLGRDCI - UPDATE RLGRDC subroutine

RLGCVT - RLGCVT subroutine

RLGEDIT, RLGEDC - UPDATE and EDIT RLGEDIT subroutine

The HIS3Ø7Ø2 Source Module - This source module is the mainline program for UPDATE, FUNCTION=NEW-KEY. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

RLGINB, RLGINBN, RLGINBC - RLGINB subroutine

DUMPDD - DUMPDD subroutine

The HIS3Ø7Ø3 Source Module - This source module is the mainline program for UPDATE, FUNCTION=REWRITE. It contains the following external references:

PRINTER, PRINT, SETPOS, SETPOSA, SETHDGS, SETINST, DUMP - PRINT subroutine

RLGRDC, RLGRDCI - UPDATE RLGRDC subroutine

RLGCVT, RLGCVTA - RLGCVT subroutine

REWRITE, REWRITF - REWRITE subroutine

RLGEDIT, RLGEDC - UPDATE and EDIT RLGEDIT subroutine

RLGRWB, RLGRWBR, RLGRWBC - RLGRWB subroutine

The HIS30710 Source Module - RLGRDC reads roadlog data cards for the update program. An A-B-C card sequence is read and returned as a "data string" (see the description of RLGCVT in the publication Highway Information System Release 4.0 - Record Formats and Subroutines for the format of a data string). RLGRDC contains the following external references:

PRINTER, PRINT, SETINST - PRINT subroutine

DUMPDD - DUMPDD subroutine

The HIS3Ø712 Source Module - RLGEDIT performs data edit checks on a roadlog data string. It is called by both the update and edit programs. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETINST, DUMP - PRINT subroutine POINTB, POINTBO, POINTBK, POINTBC - POINTB subroutine

GETDATE - GETDATE subroutine

DATEDIT - DATEDIT subroutine

INPROJ - INPROJ subroutine

INCITY - INCITY subroutine

CVTSURF - CVTSURF subroutine

CHECKDD - CHECKDD subroutine

The HIS3Ø735 Source Module - This source module is the mainline program of EDIT. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOSA, SETHDGS, SETINST, DUMP - PRINT subroutine

RLGRD, RLGRDF, RLGRDC - RLGRD subroutine

RLGCVT, RLGCVTA - RLGCVT subroutine

RLGEDIT, RLGEDC - RLGEDIT subroutine

The HIS3Ø7ØØ Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

	Source		
	<u>Module</u>	Function	
*	HIS2ØØ5Ø	PRINT interface	
*	HIS2ØØ57	DUMPDD interface	
*	HIS2ØØ58	GETLIST subroutine	
*	HIS2Ø9Ø2	GETDATE subroutine	
	HIS3ØØØ3	RLGRWB subroutine	
	HIS3Ø7ØØ	UPDATE, FUNCTION=DELETE	mainline

^{*} Stored in HIS.SUBRTN4 for inclusion by automatic call.

The HIS3 \emptyset 7 \emptyset 1 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface * Stored in HIS.SUBRTN4 to allow
*	HIS2ØØ56	CHECKDD interface inclusion by automatic call.
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS21Ø32	INPROJ subroutine
*	HIS21042	CVTSURF subroutine
	HIS3ØØØ2	RLGINB subroutine
	HIS3Ø7Ø1	UPDATE, FUNCTION=INSERT mainline
	HIS3Ø71Ø	RLGRDC subroutine
*	HIS3Ø711	RLGCVT subroutine
	HIS3Ø712	RLGEDIT subroutine
*	HIS32Ø23	POINTB interface

The HIS3Ø7Ø2 Load Module - The UPDATE, FUNCTION=NEW-KEY load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
	HIS3ØØØ2	RLGINB subroutine
	HIS3Ø7Ø2	UPDATE, FUNCTION=NEW-KEY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS3Ø7Ø3 Load Module - The UPDATE, FUNCTION=REWRITE Load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ56	CHECKDD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS21Ø32	INPROJ subroutine
*	HIS21Ø42	CVTSURF subroutine
*	HIS21Ø65	REWRITE subroutine
	HIS3ØØØ3	RLGRWB subroutine
	HIS3Ø7Ø3	UPDATE, FUNCTION=REWRITE mainline
	HIS3Ø71Ø	RLGRDC subroutine
*	HIS3Ø711	RLGCVT subroutine
	HIS3Ø712	RLGEDIT subroutine
*	HIS32Ø23	POINTB interface

^{*} Stored in HIS.SUBRTN4 for inclusion by automatic call.

The HIS3Ø735 Load Module - The EDIT load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS20051	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ56	CHECKDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS21Ø32	INPROJ subroutine
*	HIS21Ø42	CVTSURF subroutine
*	HIS3ØØ11	RLGRD interface
	HIS3Ø712	RLGEDIT subroutine
	HIS3Ø735	EDIT mainline
*	HIS32Ø23	POINTB interface

^{*} Stored in HIS.SUBRTN4 for inclusion by automatic call.

The COPY Program

Source Module	Language	Function	
HIS3Ø72Ø	Assemble	er COPY main	nline
Load Module	Entry Point	Library	Function
HIS30720	COPY	HIS.REL4PTØ	COPY

The HIS3Ø72Ø Source Module - This source module is the mainline program of COPY. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
BACKUP - BACKUP subroutine

The HIS30720 Load Module - The COPY load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
	HIS3Ø72Ø	COPY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE Program

Source Module	Language	Function	
HIS3Ø721	Assembler	CREATE main	nline
Load Module	Entry Point	Library	Function
HIS30721	CREATE	HIS.REL4PTØ	CREATE

The HIS3Ø721 Source Module - This source module is the mainline program of CREATE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

LOAD - LOAD subroutine

The HIS3Ø721 Load Module - The CREATE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø991	LOAD subroutine
	HIS3Ø721	CREATE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The REORGANIZE Program

Source Module	Language	e <u>Function</u>	
HIS3Ø722	Assemble	er REORGANI	ZE mainline
Load Module	Entry Point	Library	Function
HIS3Ø722	REORG	HIS.REL4PTØ	REORGANIZE

The HIS3Ø722 Source Module - This source module is the mainline program of REORGANIZE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

BACKUP - BACKUP subroutine

LOAD - LOAD subroutine

The HIS30722 Load Module - The REORGANIZE load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
*	HIS2Ø991	LOAD subroutine
	HIS3Ø722	REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The DUMP Program

Source Module	Language	Function	
HIS3Ø73Ø	PL/I	DUMP mainline	
Load	Entry		
Module	Point	Library	Function
HIS3Ø73Ø	PLISTART	HIS.REL4PTØ	DUMP

The HIS30730 Source Module - This source module is the mainline program of DUMP. It contains the following external references:

PRINTER, PRINT, PRINTA, SETNEW, SETHDG, SETINST, DUMP - PRINT subroutine

RLGRD, RLGRDF, RLGRDC - RLGRD subroutine

RLGCVT, RLGCVTA - RLGCVT subroutine

The HIS30730 Load Module - The DUMP load module contains the following source modules:

	Source	
	Module	Function
*	HIS20050	PRINT interface
*	HIS20051	FETCH interface
*	HIS20053	TABLRD interface
*	HIS20058	GETLIST subroutine
	* HIS21Ø12	INCITY subroutine
7	HIS21Ø32	INPROJ subroutine
*	* HIS3ØØ11	RLGRD interface
*	HIS30711	RLGCVT subroutine
	HIS3Ø73Ø	DUMP mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Source Module	Language	Function	
HIS3Ø731	PL/I	LIST mainline	:
Load Module	Entry Point	Library	Function
HIS3Ø731	PLISTART	HIS.REL4PTØ	LIST

The HIS3Ø731 Source Module - This source module is the mainline program of LIST. It contains the following external references:

PRINTER, PRINT, SETNEW, SETHDG, SETINST, DUMP - PRINT subroutine

RLGRD, RLGRDF, RLGRDC, RLGRDX - RLGRD subroutine

CVTSURF - CVTSURF subroutine

COINKEY - COINKEY subroutine

The HIS3Ø731 Load Module - This load module contains the following source modules:

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-ILOOPS Program

Source Module	Language	Function	
HIS3Ø732	PL/I	LIST-ILOOPS n	nainline
Load	Entry		
<u>Module</u>	Point	Library	Function
HIS3Ø732	PLISTART	HIS.REL4PTØ	LIST-ILOOPS

The HIS3Ø732 Source Module - This source module is the mainline program of the LIST-ILOOPS program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, DUMP - PRINT subroutine RLGRDQ, RLGRDQI, RLGRDQX, RLGRDQC - RLGRDQ subroutine

The HIS3Ø732 Load Module - The LIST-ILOOPS load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS3Ø1ØØ	COINKEY subroutine
	HIS3Ø732	LIST-ILOOPS mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.



CHAPTER 6

SKID SUBSYSTEM

The skid subsystem is also known as the HIS39 subsystem. The names of all source modules and load modules have the format HIS39xxx, where xxx is a 3-digit number.

This chapter describes each of the source modules and load modules of the skid subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs. Use of the programs and subroutines are described in the other HIS Release 4.0 publications.

The SKDRDQ Subroutine

Source Module	Language	Function
HIS39ØØØ HIS39ØØ1	Assembler Assembler	SKDRDQ subroutine SKDRDQ interface
Load Module	Library	Function
SKDRDQ	HIS.SUBRTN4	SKDRDQ interface

The HIS39000 Source Module - This source module is the SKDRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program). It resides in only one load module (see the SKDFILE Address List below). The source module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

SKDDCB - SKDDCB subroutine

SKDCMPR - SKDCMPR subroutine

The HIS39001 Source Module - This source module is the SKDRDQ interface. It is link-edited with programs that call SKDRDQ. When called, it loads the SKDRDQ subroutine into core for execution and passes control to it. It contains the following external references:

FETCH - FETCH subroutine

The SKDRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS39001 source module.

The SKDWRQ Subroutine

Source Module	Language	Function
HIS39ØØ2 HIS39ØØ3	Assembler Assembler	SKDWRQ subroutine SKDWRQ interface
Load Module	Library	Function
SKDWRQ	HIS.SUBRTN4	SKDWRQ interface

The HIS39 $\emptyset\emptyset2$ Source Module - This source module is the SKDWRQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program). It resides in only one load module so that only one link-edit is needed when the source module is modified (see The SKDFILE Address List below). The source module contains the following external references:

PRINTER, PRINT - PRINT subroutine

SKDDCB - SKDDCB subroutine

SKDCMPR - SKDCMPR subroutine

The HIS39003 Source Module - This source module is the SKDWRQ interface. It is link-edited with programs that call SKDWRQ. When called, it loads the SKDWRQ subroutine into core for execution and passes control to it. It contains the following external reference:

FETCH - FETCH subroutine

The SKDWRQ Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS39003 source module.

The SKDUPD Subroutine

Source Module	Language	Function
HIS39ØØ4 HIS39ØØ5	Assembler Assembler	SKDUPD subroutine SKDUPD interface
Load Module	Library	Function
SKDIIPD	HTS.SUBRTN4	SKDUPD interface

The HIS39004 Source Module - This source module is the SKDUPD subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program). It resides in only one load module so that only one link-edit is needed when the source module is modified (see The SKDFILE Address List below). The source module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

SKDDCB - SKDDCB subroutine

SKDCMPR - SKDCMPR subroutine

GETDATE - GETDATE subroutine

The HIS39005 Source Module - This source module is the SKDUPD interface. It is link-edited with programs that call SKDUPD. When called, it loads the SKDUPD subroutine into core and passes control to it. It contains the following external reference:

FETCH - FETCH subroutine

The SKDUPD Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS39005 source module.

The SKDCMPR Subroutine

Source $\underline{\text{Module}}$ $\underline{\text{Language}}$ $\underline{\text{Function}}$ $\underline{\text{HIS39006}}$ Assembler SKDCMPR subroutine

The HIS39 $\emptyset\emptyset$ 6 Source Module - This source module is the SKDCMPR subroutine. It has no external references.

The Skid Compressed Record Format

Columns	Length	Format	Data Element
1	1	char(1)	Delete byte
2-18	17		Key
19	1	char (1)	Surface type
2Ø	1	char(1)	Curvature
21	1	char(1)	Grade
22	1	char(1)	Location
23	1	char(1)	Surface repair
24-61	38	char(38)	Comments
62	1	fixed(1)	Surface texture
63	1	fixed(1)	Foreign matter
64-65	2	fixed(2)	Pavement temperature
66	1	* fixed(2)	Speed
67	1	* fixed(2)	Skid number
68	1	* fixed(2)	Date of update - month
69	1	* fixed(2)	Date of update - day
7Ø	1	* fixed(2)	Date of update - year

^{*} Stored without sign and leading zero.

Key Format - Rural

Columns	Length	Format	Data Element
2	1	char(1)	Route system
3-9	7	fixed(12)	Route number and milepoint
1Ø	1	char(1)	Direction
11	1		Blank
12	1	char(1)	Lane
13	1	char(1)	Wheel
14	1 ,	fixed(2)	Date - month
15	1 ,	fixed(2)	Date - day
16	1 ,	fixed(2)	Date - year
17-18	2 ;	fixed(4)	Sequence number

^{*} Stored without sign and leading zero.

Key Format - Municipal

Columns	Length	Format	Data Element
2	1	char(1)	"M"
3-8	6	fixed(11)	City number, x-coordinate, y-coordinate
9	.1	char(1)	Direction
1Ø-11	2	fixed(3)	Distance from intersection
12-18	7		Same as 12-18 of rural key

The SKDDCB Subroutine

Source		
Module	Language	Function
HIS39ØØ7	Assembler	SKDDCB subroutine

The HIS39 ϕ 7 Source Module - This source module is the SKDDCB subroutine. It has the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine DUMPDD - DUMPDD subroutine

The SKDFILE Address List

Source				
Module	Language	<u>Function</u>		
HIS39008	Assembler	SKDFILE add	ress list	
Load	Entry		Access	
Module	Point	Library	Name	Function
HIS39ØØ8	SKDFILE	HIS.REL4PTØ	SKDFILE	Skid dynamic subroutines

The HIS39008 Source Module - This source module is an address list for use by interfaces to dynamic skid subroutines. It contains the following external references:

SKDRDQE - Address list of SKDRDQ subroutine
SKDWRQE - Address list of SKDWRQ subroutine
SKDUPDE - Address list of SKDUPD subroutine
SKDCMPR - SKDCMPR subroutine
SKDDCB - SKDDCB subroutine

The HIS39008 Load Module - The SKDFILE load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ57	DUMPDD interface
* HIS2ØØ58	GETLIST subroutine
* HIS2Ø9Ø2	GETDATE subroutine
* HIS2Ø9Ø5	PRINTER control section
HIS39ØØØ	SKDRDQ subroutine
HIS39ØØ2	SKDWRQ subroutine
HIS39ØØ4	SKDUPD subroutine
HIS39006	SKDCMPR subroutine
HIS39ØØ7	SKDDCB subroutine
HIS39ØØ8	SKDFILE address list

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SKDRD_Subroutine

Module_	Language	Function		
HIS39Ø1Ø HIS39Ø11	Assemble:			
Load Module	Entry Point	Library	Access Name	Function
HIS39Ø1Ø SKDRD	SKDRDE 	HIS.REL4PTØ HIS.SUBRTN4	SKDRD	SKDRD subroutine SKDRD interface

The HIS39010 Source Module - This source module is the SKDRD subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). It is stored only in the HIS39010 load module so that only one link-edit is necessary when the source module is modified. The source module has these external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine
SELTEST, SELTESTI, SELTESTC - SELTEST subroutine
SKDRDQ, SKDRDQF, SKDRDQR, SKDRDQC - SKDRDQ subroutine

RLGRDQ,RLGRDQF,RLGRDQT,RLGRDQL,RLGRDQC - RLGRDQ subroutine
CVTCITY - CVTCITY subroutine

The HIS39011 Source Module - This source module is the SKDRD interface. It is linked with programs that call SKDRD. When called, it loads the SKDRD subroutine and passes control to it. It contains the following external reference:

FETCH - FETCH subroutine

The HIS39010 Load Module - The SKDRD load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS21Ø13	CVTCITY subroutine
*	HIS22ØØ1	SELTEST interface
*	HIS3ØØØ1	RLGRDQ interface
*	HIS39ØØ1	SKDRDQ interface
	HIS39Ø1Ø	SKDRD subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SKDRD Load Module - This load module is stored in HIS.SUBRTN4 library. When link-editing, the module is retrieved by automatic call. It contains the HIS39011 source module.

The SKDOPT Subroutine

Source		
<u>Module</u>	Language	Function
HIS391ØØ	PL/I	SKDOPT subroutine
Load		
Module_	Library	Function
SKDOPT	HIS.SUBRT	N4 SKDOPT subroutine

The HIS39100 Source Module - This source module is the SKDOPT subroutine. It contains the following external references:

PRINTER, PRINT, SETPOS, SETNEW, SETINST, DUMP - PRINT subroutine

The SKDOPT Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, the module is retrieved by automatic call. It contains the HIS39100 source module.

The SKDCVT Subroutine

Source Module	Language	Function
HIS39711	PL/I	SKDCVT subroutine
Load Module	Library	Function
SKDCVT	HIS SURRTN	4 SKDCVT subroutine

The HIS39711 Source Module - This source module is the SKDCVT subroutine. It contains no external references.

The SKDCVT Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, the module is retrieved by automatic call. It contains the HIS39711 source module.

The LOW-SKID-NUMBERS Program

Source

Module	Language	Function	
HIS392ØØ	PL/I	LOW-SKID-NUME	BERS mainline
T J	E 4		
Load Module	Entry Point	Library	Function
HIS39200	PLISTART	HIS.REL4PTØ	LOW-SKID-NUMBERS

The HIS39200 Source Module - This source module is the mainline program of LOW-SKID-NUMBERS. It contains the following external references:

PRINTER, PRINT, SETPOS, SETHDGS - PRINT subroutine

SKDRDF, SKDRD, SKDRDC - SKDRD subroutine

INCITY - INCITY subroutine

DATE4 - DATE4 subroutine

SKDOPT - SKDOPT subroutine

The HIS39200 Load Module - The LOW-SKID-NUMBERS load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ53	TABLRD interface
* HIS2ØØ58	GETLIST subroutine
* HIS2Ø9Ø2	GETDATE subroutine
* HIS2Ø9Ø7	DATE2 subroutine
* HIS2Ø9Ø9	DATE4 subroutine
* HIS21Ø12	INCITY subroutine
* HIS39Ø11	SKDRD interface
* HIS39100	SKDOPT subroutine
HIS392ØØ	LOW-SKID-NUMBERS mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE, EDIT, AND SKID-LOAD Programs

Source Module	Language	Function
HIS39700 HIS39701 HIS39702 HIS39703 HIS39708 HIS39710 HIS39712	PL/I PL/I PL/I PL/I PL/I PL/I PL/I	UPDATE, FUNCTION=DELETE mainline UPDATE, FUNCTION=INSERT mainline UPDATE, FUNCTION=NEW-KEY mainline UPDATE, FUNCTION=REWRITE mainline SKID-LOAD mainline SKDRDC subroutine SKDEDIT subroutine
HIS39713 HIS39714 HIS39735	PL/I PL/I PL/I	SKDED1 subroutine SKDED2 subroutine EDIT mainline

Load	Entry		
Module	Point	Library	Function
HIS397ØØ	PLISTART	HIS.REL4PTØ	UPDATE, FUNCTION=DELETE
HIS397Ø1	PLISTART	HIS.REL4PTØ	UPDATE, FUNCTION=INSERT
HIS397Ø2	PLISTART	HIS.REL4PTØ	UPDATE, FUNCTION=NEW-KEY
HIS397Ø3	PLISTART	HIS.REL4PTØ	UPDATE, FUNCTION=REWRITE
HIS397Ø8	PLISTART	HIS.REL4PTØ	SKID-LOAD
HIS39735	PLISTART	HIS.REL4PTØ	EDIT

The HIS39700 Source Module - This source module is the mainline program of the update delete function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

SKDRDC - SKDRDC subroutine

SKDUPD, SKDUPDD, SKDUPDC - SKDUPD subroutine

DATE4 - DATE4 subroutine

The HIS397Ø1 Source Module - This source module is the mainline program of the update insert function. It contains the following external references:

PRINTER, PRINTA, PRINT, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

SKDRDC - SKDRDC subroutine

SKDCVT - SKDCVT subroutine

SKDEDIT, SKDEDC - SKDEDIT subroutine

SKDUPD, SKDUPDI, SKDUPDC - SKDUPD subroutine

DATE4 - DATE4 subroutine

The HIS39702 Source Module - This source module is the mainline program of the update new-key function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

SKDRDC - SKDRDC subroutine

SKDCVT - SKDCVT subroutine

SKDEDIT, SKDEDC - SKDEDIT subroutine

SKDUPD, SKDUPDG, SKDUPDI, SKDUPDD, SKDUPDC - SKDUPD subroutine

DATE4 - DATE4 subroutine

The HIS397Ø3 Source Module - This source module is the mainline program of the update rewrite function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

SKDRDC - SKDRDC subroutine

SKDCVT - SKDCVT subroutine

SKDEDIT, SKDEDC - SKDEDIT subroutine

SKDUPD, SKDUPDG, SKDUPDR, SKDUPDC - SKDUPD subroutine

REWRITE, REWRITF - REWRITE subroutine

DATE4 - DATE4 subroutine

The HIS39708 Source Module - This source module is the mainline program of the skid load program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDGS, SETINST, DUMP - PRINT subroutine

SKDRDC - SKDRDC subroutine

SKDCVT - SKDCVT subroutine

SKDEDIT, SKDEDC - SKDEDIT subroutine

The HIS3971Ø Source Module - This source module is the SKDRDC subroutine. It reads data cards for the mainline update and load programs. When called, a pointer and a binary fixed(15) variable are passed. The binary variable contains one of these values to indicate the calling program:

- Ø Delete function
- 1 Insert function or load
- 2 New-key function
- 3 Rewrite function

A card is read and the passed pointer is set to the card's address. The source module has these external references:

PRINTER, PRINT, PRINTA, SETINST, DUMP - PRINT subroutine

DUMPDD - DUMPDD subroutine

The HIS39712 Source Module - This source module is the SKDEDIT subroutine. When called, a pointer and a binary fixed(15) variable are passed. The pointer must contain the address of a skid data card read by SKDRDC. The return code indicates the outcome of the edits:

- No warnings or severe errors
- 1 One or more warnings but no severe errors
- 2 One or more severe errors

SKDEDIT determines whether the card is a rural or a municipal card. If it is a rural card, SKDED1 is called. Otherwise, SKDED2 is called. The source module contains the following external references:

SKDED1,SKDED1C - SKDED1 subroutine SKDED2,SKDED2C - SKDED2 subroutine

When entry point SKDEDC is called, SKDEDIT calls both SKDED1C and SKDED2C.

The HIS39713 Source Module - This source module is the SKDED1 subroutine, which performs edit checks for rural data cards. It has entry points SKDED1 and SKDED1C. SKDED1 is called to edit a card. SKDED1C is called upon termination. Calling sequences are identical to SKDEDIT. The source module contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETINST, DUMP - PRINT subroutine

RLGRDQ, RLGRDQF, RLGRDQX, RLGRDQC - RLGRDQ subroutine

POINTB, POINTBO, POINTBK, POINTBC - POINTB subroutine

DATEDIT - DATEDIT subroutine

GETDATE - GETDATE subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The HIS39714 Source Module - This source module is the SKDED2 subroutine, which performs edit checks for municipal data cards. It has entry points SKDED2 and SKDED2c. Calling sequences are identical to SKDEDIT and SKDED1. The source module contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETINST, DUMP - PRINT subroutine

RLGRDQ, RLGRDQF, RLGRDQX, RLGRDQC - RLGRDQ subroutine

DATEDIT - DATEDIT subroutine

GETDATE - GETDATE subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The HIS39735 Source Module - This source module is the mainline procedure of the edit program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDGS, SETINST, DUMP - PRINT subroutine

SKDRD, SKDRDF, SKDRDC - SKDRDC subroutine

SKDCVT - SKDCVT subroutine

SKDEDIT, SKDEDC - SKDEDIT subroutine

The HIS39700 Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

	Source	B water
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS39ØØ5	SKDUPD interface
	HIS397ØØ	UPDATE, FUNCTION=DELETE mainline
	HIS3971Ø	SKDRDC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS397Ø1 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ53	TABLRD interface
* HIS2ØØ57	DUMPDD interface
* HIS20058	GETLIST subroutine

	Source Module	Function	
* * *	HIS2Ø9Ø2 HIS2Ø9Ø3 HIS2Ø9Ø7 HIS2Ø9Ø9 HIS3ØØØ1 HIS32Ø23	GETDATE subroutine DATEDIT subroutine DATE2 subroutine DATE4 subroutine RLGRDQ interface POINTB interface	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.
	HIS39005 HIS39701 HIS39710	SKDUPD interface UPDATE, FUNCTION=INSERT SKDRDC subroutine	mainline
*	HIS39711 HIS39712 HIS39713 HIS39714	SKDCVT subroutine SKDEDIT subroutine SKDED1 subroutine SKDED2 subroutine	

The HIS39702 Load Module - The UPDATE, FUNCTION=NEW-KEY load module contains the following source modules:

	Source		
	Module_	Function	
*	HIS2ØØ5Ø	PRINT interface	
*	HIS2ØØ51	FETCH interface	
*	HIS2ØØ53	TABLRD interface	
*	HIS2ØØ57	DUMPDD interface	
*	HIS2ØØ58	GETLIST subroutine	
*	HIS2Ø9Ø2	GETDATE subroutine	
*	HIS2Ø9Ø3	DATEDIT subroutine	
*	HIS2Ø9Ø7	DATE2 subroutine	
*	HIS2Ø9Ø9	DATE4 subroutine	
*	HIS3ØØØ1	RLGRDQ interface	
*	HIS32Ø23	POINTB interface	
*	HIS39ØØ5	SKDUPD interface	
	HIS397Ø2	UPDATE, FUNCTION=NEW-KEY	mainline
	HIS3971Ø	SKDRDC subroutine	
*	HIS39711	SKDCVT subroutine	
	HIS39712	SKDEDIT subroutine	
	HIS39713	SKDED1 subroutine	
	HIS39714	SKDED2 subroutine	

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS397Ø3 Load Module - The UPDATE, FUNCTION=REWRITE load module contains the following source modules:

	Source Module	Function
	Module	ruiccion
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø65	REWRITE subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS32Ø23	POINTB interface
*	HIS39ØØ5	SKDUPD interface
	HIS397Ø3	UPDATE, FUNCTION=REWRITE mainline
	HIS3971Ø	SKDRDC subroutine
*	HIS39711	SKDCVT subroutine
	HIS39712	SKDEDIT subroutine
	HIS39713	SKDED1 subroutine
	HIS39714	SKDED2 subroutine

^{*} stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS397Ø8 Load Module - The SKID-LOAD load module contains the following source modules:

Source	
Module_	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ53	TABLRD interface
* HIS20057	DUMPDD interface
* HIS2ØØ58	GETLIST subroutine
* HIS2Ø9Ø2	GETDATE subroutine
* HIS2Ø9Ø3	DATEDIT subroutine
* HIS3ØØØ1	RLGRDQ interface
* HIS32Ø23	POINTB interface
* HIS39005	SKDUPD interface
HIS397Ø8	SKID-LOAD mainline
HIS3971Ø	SKDRDC subroutine
* HIS39711	SKDCVT subroutine
HIS39712	SKDEDIT subroutine
HIS39713	SKDED1 subroutine
HIS39714	SKDED2 subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS39735 Load Module - The EDIT load module contains the following source modules:

Function
PRINT interface
FETCH interface
TABLRD interface
GETLIST subroutine
GETDATE subroutine
DATEDIT subroutine
RLGRDQ interface
POINTB interface
SKDRD interface
SKDCVT subroutine
SKDEDIT subroutine
SKDED1 subroutine
SKDED2 subroutine
EDIT mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The Ramp Location Table - The ramp location table identifies the locations of rural ramps. The first record of the table is a header record which contains a count of the number of records in the table (not counting the header record) in columns 1-3. The remaining records each contain the key (route system, route number, and milepoint) of a ramp location. Information on maintaining the table is included in the chapter entitled "TABLES" in the publication Highway Information System Release 4.0 - Record Formats and Subroutines.

The Rural Edit Table - The rural edit table contains information used by SKDED1 when performing edit checks. The table consists of 19 records. Each record has a $2\emptyset$ -character identification field in columns $1-2\emptyset$, record-dependent information in columns $21-4\emptyset$, and blanks in the remainder of the record. The 19 records are:

Record Number	Identification	Contents of Columns 21-40
110111001		ontented of column 21 40
1	ROUTE-SYSTEM	Allowable route system codes
2	DIRECTION	Allowable direction codes
3	LANE-OF-TRAVEL	Allowable lane codes
4	WHEEL	Allowable wheel codes
5	SURFACE-TYPE	Allowable surface type codes
6	SURFACE-TEXTURE	Allowable surface texture codes
7	HOR-CURVE	Allowable horizontal curvature codes
8	GRADE	Allowable grade codes
9	FOREIGN-MATTER	Allowable foreign matter codes
1Ø	LOCATION-CODE	Allowable location codes
11	SURFACE-REPAIR	Allowable surface repair codes
12	LANE-OF-TRAVEL-RAMP	Allowable lane codes for ramps
13	SPEED	Upper and lower speed limits
14	SKID-NUMBER	Upper and lower skid numbers
15	PAVEMENT-TEMP	Upper and lower temperature limits
16	LOCATION-CODE-RAMP	Allowable location codes for ramps
17	ROADLOG-ROUTES	Roadlog cross-check switch
18	RAMP-LOCATIONS-TABLE	Ramp table cross-check switch
19	TRUE-MILEAGE	True mileage cross-check switch

Record Number

- This record contains a list of codes that can appear in the route system portion of the key. The codes are left-justified beginning in column 21. The first blank terminates the field.
- This record contains a list of codes that can appear in the direction field. The codes are left-justified beginning in column 21. The first blank terminates the field. If a blank can be accepted, column 21 is blank and the other codes begin in column 22.
- This record contains a list of codes that can appear in the lane of travel field for non-ramp records. It is prepared like record 2.
- This record contains a list of codes that can appear in the wheel field. It is prepared like record 2.
- 5 This record contains a list of codes that can appear in the surface type field. It is prepared like record 2.
- This record contains a list of codes that can appear in the surface texture field. It is prepared like record 2.
- 7 This record contains a list of codes that can appear in the horizontal curve field. It is prepared like record 2.
- 8 This record contains a list of codes that can appear in the grade field. It is prepared like record 2.

Record Number

- 9 This record contains a list of codes that can appear in the foreign matter field. It is prepared like record 2.
- 10 This record contains a list of location codes that can appear in the location field of non-ramp records. It is prepared like record 2.
- This record contains a list of codes that can appear in the surface repair field. It is prepared like record 2.
- This record contains a list of codes that can appear in the lane of travel field of ramp records. It is prepared like record 2.
- This record contains the upper and lower limits of values in the speed field. The lower limit is coded in columns 21-22 and the upper limit is coded in columns 23-24.
- This record contains the upper and lower limits of values in the skid number field. It is prepared like record 13.
- This record contains the upper and lower limits of values in the temperature field. The lower limit is in columns 21-23 (with leading zeroes) and the upper limit is in columns 24-26.
- This record contains a list of codes that can appear in the location field of ramp records. It is prepared like record 2.
- This record controls access to the roadlog file. If the characters YES appear left-justified in columns 21-40, the skid records will be edited against the roadlog file. If the characters NO appear, the roadlog editing is bypassed. Message SKD-M003 is affected by this switch.
- This record controls editing against the ramp location table. It is prepared like record 17. Message SKD-MØØ6 is affected by this switch.
- This record controls editing against the true mileage file. It is prepared like record 17. Messages SKD-M \emptyset \emptyset 5 and SKD-M \emptyset \emptyset 7 are affected by this switch.

Information pertaining to maintenance of this table can be found in the chapter entitled "TABLES" in the publication Highway Information System Release 4.0 - Record Formats and Subroutines.

The Municipal Edit Table - The municipal edit table contains information used by SKDED2 when performing edit checks. The format of the records is the same as in the rural edit table. The table contains the following 21 records:

Record		
Number	Identification	Contents of Columns 21-40
1	ROUTE-SYSTEM	Allowable route system codes
2	DIRECTION	Allowable direction codes
3	LANE-OF-TRAVEL	Allowable lane codes
4	WHEEL	Allowable wheel codes
5	SURFACE-TYPE	Allowable surface type codes
6	SURFACE-TEXTURE	Allowable surface texture codes
7	HOR-CURVE	Allowable horizontal curvature codes
8	GRADE	Allowable grade codes
9	FOREIGN-MATTER	Allowable foreign matter codes
1Ø	LOCATION-CODE	Allowable location codes
11	SURFACE-REPAIR	Allowable surface repair codes
12	LANE-OF-TRAVEL-RAMP	Allowable lane codes in ramp records
13	SPEED	Allowable speed values
14	SKID-NUMBER	Allowable skid numbers
15	PAVEMENT-TEMP	Allowable pavement temperatures
16	LOCATION-CODE-RAMP	Allowable location codes in ramp records
17	CITY-NUMBER	Allowable city numbers
18	X-COORDINATE	Allowable x-coordinates
19	Y-COORDINATE	Allowable y-coordinates
2Ø	LOCATION-DIRECTION	Allowable location codes when distance from intersection i non-zero
21	ROADLOG-ROUTES	Roadlog cross-check switch
Record		
Number		
1-16	Como as correspondina	record in rural edit table.
		record in rural eart table.
17	Code like record 15.	
18-19	Lower limit in 21-24,	upper limit in 25-28.
2 Ø	Code like record 2.	
21	Code like record 17 of	f rural table.

The REORGANIZE Program

Source		
Module	Language	<u>Function</u>
HIS39722	PL/I	REORGANIZE mainline

Load	Entry		
Module	_Point	Library	Function
HIS39722	PLISTART	HTS.REL4PTØ	REORGANIZE

The HIS39722 Source Module - This source module is the REORGANIZE mainline. It contains the following external references:

PRINTER, PRINT, SETINST, SETHDGS, DUMP - PRINT subroutine

SKDRDQ, SKDRDQF, SKDRDQC - SKDRDQ subroutine

SKDWRQ, SKDWRQC - SKDWRQ subroutine

DUMPDD - DUMPDD subroutine

DATE4 - DATE4 subroutine

The HIS39722 Load Module - The REORGANIZE load module contains the following source modules:

	Source	
	Module	Function
٩	HIS20050	PRINT interface
7	HIS20051	FETCH interface
7	* HIS2ØØ57	DUMPDD interface
7	* HIS2ØØ58	GETLIST subroutine
7	* HIS2Ø9Ø2	GETDATE subroutine
7	* HIS2Ø9Ø7	DATE2 subroutine
7	* HIS2Ø9Ø9	DATE4 subroutine
7	* HIS39ØØ1	SKDRDQ interface
5	* HIS39ØØ3	SKDWRQ interface
	HIS39722	REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Module	Language	Function	
HIS39731	PL/I	LIST mainline	
Load	Entry		
Module	Point	Library	Function
HIS39731	PLISTART	HIS.REL4PTØ	LIST

The HIS39731 Source Module - This source module is the mainline program of LIST. It contains the following external references:

PRINTER, PRINT, SETNEW, SETHDGS, SETINST, DUMP - PRINT subroutine

SKDRDQ,SKDRDQF,SKDRDQX,SKDRDQC - SKDRDQ subroutine

SKDRD, SKDRDF, SKDRDC - SKDRD subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

INCITY - INCITY subroutine

DATE4 - DATE4 subroutine

SKDOPT - SKDOPT subroutine

DUMPDD - DUMPDD subroutine

The HIS39731 Load Module - The LIST load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø12	INCITY subroutine
*	HIS39ØØ1	SKDRDQ interface
*	HIS39Ø11	SKDRD interface
*	HIS391ØØ	SKDOPT subroutine
	HIS39731	LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SKID-CARD-CONVERT Program

Source			
Module	Language	Function	
HIS39799	PL/I	SKID-CARD-CON	WERT mainline
Load	Entry		
Module	Point	Library	Function
HIS39799	PLISTART	HIS.REL4PTØ	SKID-CARD-CONVERT

The HIS39799 Source Module - This source module is the SKID-CARD-CONVERT mainline. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, DUMP - PRINT subroutine

DUMPDD - DUMPDD subroutine

The HIS39799 Load Module - The SKID-CARD-CONVERT load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS20057	DUMPDD interface
* HIS2ØØ58	GETLIST subroutine
HIS39799	SKID-CARD-CONVERT mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

CHAPTER 7

SUFFICIENCY SUBSYSTEM

The sufficiency subsystem is also known as the HIS34 subsystem. The names of all source modules and load modules have the format HIS34xxx, where xxx is a 3-digit number.

This chapter describes each of the source modules and load modules of the sufficiency subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs. Use of the programs and subroutines are described in the other HIS release 4.0 publications.

The SUFRDQ Subroutine

Module_	Language	Function		
HIS34ØØØ HIS34ØØ1	Assembler Assembler	SUFRDQ subro		
Load Module	Entry Point	Library	Access Name	Function
HIS34000 SUFRDQ	SUFRDQE	HIS.REL4PTØ HIS.SUBRTN4	SUFRDQ 	SUFRDQ subroutine SUFRDQ interface

The HIS34000 Source Module - This source module is the SUFRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The source module resides in only the HIS34000 load module so that only one link-edit is needed when the source module is modified. The source module has the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS34001 Source Module - This source module is the SUFRDQ interface. It is linked with programs that call SUFRDQ. When called, it loads SUFRDQ into core and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The HIS34000 Load Module - This load module contains the dynamic SUFRDQ subroutine. It contains the following source modules:

Source Module	Function	
* HIS2ØØ5Ø * HIS2ØØ58 * HIS2Ø9Ø5 HIS34ØØØ	PRINT interface GETLIST subroutine PRINTER control section SUFRDO subroutine	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUFRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS34001 source module.

The SUFINB Subroutine

Source			
Module	Language	Function	<u>on</u>
HIS34ØØ2	Assembler	SUFINB	subroutine

The HIS34002 Source Module - This source module is the SUFINB subroutine. It must be linked with programs that use it. Because of its limited usage, it is not stored in the HIS.SUBRTN4 library. If it is needed, it must be compiled and its object module explicitly included. The source module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
GETDATE - GETDATE subroutine

The SUFRWB Subroutine

Source		
Module	Language	Function
HTS34003	Assembler	SUFRWB subroutine

The HIS34 $\emptyset\emptyset$ 3 Source Module - This source module is the SUFRWB subroutine. See the HIS34 $\emptyset\emptyset$ 2 source module above for external references and comments.

The SUFRD Subroutine

Source Module	Language	Function		
HIS34Ø1Ø HIS34Ø11	Assembler Assembler	SUFRD subro		
Load Module	Entry Point	Library	Access Name	Function
HIS34Ø1Ø SUFRD	SUFRDE	HIS.REL4PTØ HIS.SUBRTN4	SUFRD	SUFRD subroutine SUFRD interface

The HIS34010 Source Module - This source module is the SUFRD subroutine. It is designed as a dynamic subroutine (one that is loaded when needed rather than link-edited with calling programs). It appears only in the HIS34010 load module so that only one link-edit is needed when the source module is modified. The source module contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine SELTEST, SELTESTI, SELTESTC - SELTEST subroutine SUFRDQ, SUFRDQF, SUFRDQR, SUFRDQC - SUFRDQ subroutine

The HIS34011 Source Module - This source module is the SUFRD interface. It is link-edited with programs that call SUFRD. When called, the interface loads the SUFRD subroutine and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The HIS34010 Load Module - The SUFRD load module contains the following source modules:

Source Module	Function	
* HIS2ØØ5Ø * HIS2ØØ51 * HIS2ØØ58 * HIS2Ø9Ø5 * HIS22ØØ1 * HIS34ØØ1 HIS34Ø1Ø	PRINT interface FETCH interface GETLIST subroutine PRINTER control section SELTEST interface SUFRDQ interface SUFRD subroutine	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUFRD Load Module - This module is stored in the HIS.SUBRTN4 library. When link-editing, it is retrieved by automatic call. It contains the HIS34Ø11 source module.

The SFRRDQ Subroutine

Source Module	Language	Function		
HIS34Ø2Ø HIS34Ø21	Assembler Assembler	SFRRDQ subr SFRRDQ inte		
Load Module	Entry Point	Library	Access Name	Function
HIS34Ø2Ø SFRRDQ	SFRRDQE	HIS.REL4PTØ HIS.SUBRTN4	SFRRDQ 	SFRRDQ subroutine SFRRDQ interface

The HIS34020 Source Module - Similar to HIS34000 source module above.

The HIS34021 Source Module - Similar to HIS34001 source module above.

The HIS34020 Load Module - The dynamic SFRRDQ load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
	HIS34Ø2Ø	SFRRDQ subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SFRRDQ Load Module - This load module is stored in HIS.SUBRTN4 to allow inclusion by automatic call. It contains the HIS34Ø21 source module.

The SFRWRQ Subroutine

Source		
Module	Language	Function
HIS34022	Assembler	SFRWRQ subroutine

The HIS34022 Source Module - This source module is the SFRWRQ subroutine. It contains no external references. It must be link-edited with any program that calls it. It is not stored in HIS.SUBRTN4.

The PRNTSFR Subroutine

Source
Module Language Function

HIS34100 PL/I PRNTSFR subroutine

Load
Module Library Function

PRNTSFR HIS.SUBRTN4 PRNTSFR subroutine

The HIS34100 Source Module - This source module is the PRNTSFR subroutine. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The PRNTSFR Load Module - This load module is stored in the HIS.SUBRTN4 library. It allow inclusion of the PRNTSFR subroutine by automatic call. It contains the HIS34100 source module.

The SREPSRT Subroutine

Source Module	Language	Function
HIS341Ø1	PL/I	SREPSRT subroutine
Load Module	Library	Function
SREPSRT	HTS.SUBRTN	

The HIS34101 Source Module - This source module is the SREPSRT subroutine. It contains the following external references:

SFRRDQ,SFRRDQI,SFRRDQC - SFRRDQ subroutine PRINTER,PRINT,DUMP - PRINT subroutine PLISRTA - PL/I sort routines The SREPSRT Load Module - This load module is stored in the HIS.SUBRTN4 library. It allows inclusion of the SREPSRT subroutine by automatic call. It contains the HIS34101 source module.

The SUFCVT Subroutine

Source Module	Language	Function
HIS34711	PL/I	SUFCVT subroutine
Load Module	Library	Function
SUFCVT	HIS.SUBRTN	

The HIS34711 Source Module - This source module is the SUFCVT subroutine. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The SUFCVT Load Module - This load module is stored in HIS.SUBRTN4. It allows inclusion of SUFCVT by automatic call. It contains the HIS34711 source module.

The LIST-BY-SECTION Program

Source

Module	Language	Function	
HIS342ØØ	PL/I	LIST-BY-SECTI	ON mainline
Load	Entry		
Module	Point	Library	Function
HIS34200	PLISTART	HIS.REL4PTØ	LIST-BY-SECTION

The HIS34200 Source Module - This source module is the LIST-BY-SECTION mainline program. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETPOSA - PRINT subroutine SETHDGS, SETNEW, SETLINK, SETINST, DUMP - PRINT subroutine SFRRDQ, SFRRDQI, SFRRDQC - SFRRDQ subroutine

INCNTY - INCNTY subroutine

INCITY - INCITY subroutine

RLGRDQ, RLGRDQI, RLGRDQT, RLGRDQX, RLGRDQC - RLGRDQ subroutine

The HIS34200 Load Module - The LIST-BY-SECTION load module contains the following source modules:

Source	
Module	Function
HIS20050	PRINT interface
	FETCH interface
HIS2ØØ53	TABLRD interface
HIS20058	GETLIST subroutine
HIS21Ø12	INCITY subroutine
HIS21142	INCNTY subroutine
HIS30001	RLGRDQ interface
HIS34Ø21	SFRRDQ interface
HIS34200	LIST-BY-SECTION mainline
	Module HIS2ØØ5Ø HIS2ØØ51 HIS2ØØ53 HIS2ØØ58 HIS21Ø12 HIS21142 HIS3ØØØ1 HIS34Ø21

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-BY-DISTRICT Program

Source			
Module	Language	Function	
HIS342Ø1	PL/I	LIST-BY-DISTE	RICT mainline
Load	Entry		
Module	Point	Library	Function
HIS342Ø1	PLISTART	HIS.REL4PTØ	LIST-BY-DISTRICT

The HIS34201 Source Module - This source module is the LIST-BY-DISTRICT mainline program. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETPOSA - PRINT subroutine

SETINST, SETHDGS, SETNEW, SETLINK, DUMP - PRINT subroutine

SREPSRT - SREPSRT subroutine

INCNTY - INCNTY subroutine

The HIS34201 Load Module - The LIST-BY-DISTRICT load module contains the following source modules:

	Source	
	Module	Function
;	* HIS2ØØ5Ø	PRINT interface
:	* HIS2ØØ51	FETCH interface
:	* HIS2ØØ53	TABLRD interface
;	* HIS2ØØ58	GETLIST subroutine
;	* HIS21142	INCNTY subroutine
;	* HIS34Ø21	SFRRDQ interface
	* HIS341Ø1	SREPSRT subroutine
	HIS34201	LIST-BY-DISTRICT mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-BY-RATING Program

Source Module	Language	Function	
HIS342Ø2	PL/I	LIST-BY-RATIN	NG mainline
Load	Entry	* **	
Module	Point	Library	Function
HIS342Ø2	PLISTART	HIS.REL4PTØ	LIST-BY-RATING

The HIS34202 Source Module - This source module is the LIST-BY-RATING mainline program. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETPOSA - PRINT subroutine

SETINST, SETHDGS, SETNEW, SETLINK, DUMP - PRINT subroutine

SREPSRT - SREPSRT subroutine

INCNTY - INCNTY subroutine

The HIS34202 Load Module - The LIST-BY-RATING load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21142	INCNTY subroutine
*	HIS34Ø21	SFRRDQ interface
*	HIS341Ø1	SREPSRT subroutine
	HIS342Ø2	LIST-BY-RATING mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The MAP-TABLES Program

Source Module	Language	Function	
HIS342Ø3	PL/I	MAP-TABLES ma	ainline
Load	Entry		
Module	Point	Library	Function
HIS342Ø3	PLISTART	HIS.REL4PTØ	MAP-TABLES

The HIS342Ø3 Source Module - This source module is the map-tables mainline program. It contains the following external references:

PRINTER, PRINT, SETPOSA, SETINST, SETDD, DUMP - PRINT subroutine SFRRDQ, SFRRDQI, SFRRDQC - SFRRDQ subroutine

The HIS342Ø3 Load Module - The MAP-TABLES load module contains the following source modules:

	Source	
	Module_	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS34Ø21	SFRRDQ interface
	HIS342Ø3	MAP-TABLES mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The RATING-BY-DISTRICT Program

Source Module HIS342Ø4	Language PL/I	Function RATING-BY-DIS	STRICT mainline
Load Module	Entry Point	Library	Function
HIS342Ø4	PLISTART	HIS.REL4PTØ	RATING-BY-DISTRICT mainline

The HIS34204 Source Module - This source module is the RATING-BY-DISTRICT mainline program. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine SFRRDQ, SFRRDQI, SFRRDQC - SFRRDQ subroutine

The HIS34204 Load Module - The RATING-BY-DISTRICT load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS34Ø21	SFRRDQ interface
	HIS342Ø4	RATING-BY-DISTRICT mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The DEF-MILES-BY-COUNTY Program

Source			
Module	Language	Function	
HIS342Ø5	PL/I	DEF-MILES-BY-	-COUNTY mainline
Load	Entry		
Module	Point	Library	Function
HIS34205	PLISTART	HIS.REL4PTØ	DEF-MILES-BY-COUNTY

The HIS34205 Source Module - This source module is the mainline program of DEF-MILES-BY-COUNTY. It contains the following external references:

PRINTER, PRINT, SETPOSA, SETHDGS, SETINST - PRINT subroutine SFRRDQ, SFRRDQI, SFRRDQC - SFRRDQ subroutine INCNTY - INCNTY subroutine

The HIS34205 Load Module - This load module is the DEF-MILES-BY-COUNTY load module. It contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21142	INCNTY subroutine
*	HIS34Ø21	SFRRDQ interface
	HIS342Ø5	DEF-MILES-BY-COUNTY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE-SUFFREP Program

Source Module	Language	Function	
HIS346ØØ	PL/I	CREATE-SUFFREP	
HIS34601	PL/I	CREATE-SUFFREP	
HIS346Ø2	PL/I	CREATE-SUFFREP	SREPRLG
HIS346Ø3	PL/I	CREATE-SUFFREP	SREPTRF
HIS346Ø4	PL/I	CREATE-SUFFREP	SREPACC
HIS346Ø5	PL/I	CREATE-SUFFREP	SREPCAL
HIS346Ø6	PL/I	CREATE-SUFFREP	SREPLOD
HIS346Ø7	PL/I	CREATE-SUFFREE	SREPERR
HIS346Ø8	PL/I	CREATE-SUFFREP	SREPIN
HIS346Ø9	PL/I	CREATE-SUFFREP	SREPOUT
Load	Entry		
Module	Point	Library	Function
HIS346ØØ	PLISTART	HIS.REL4PTØ	CREATE-SUFFREP

The HIS34600 Source Module - This source module is the CREATE-SUFFREP mainline program. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, DUMP - PRINT subroutine

SREPSUF - SREPSUF subroutine

SREPRLG - SREPRLG subroutine

SREPTRF - SREPTRF subroutine

SREPACC - SREPACC subroutine

SREPCAL - SREPCAL subroutine

SREPLOD - SREPLOD subroutine

SREPERR - SREPERR subroutine

CLOSIN - SREPIN subroutine

CLOSOUT - SREPOUT subroutine

The HIS346Øl Source Module - This source module is the SREPSUF subroutine of CREATE-SUFFREP. It reads the sufficiency file and creates the sufficiency report file, filling in sufficiency data. A label variable is passed, and a branch to the passed label is taken if an error occurs. The source module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

SUFRDQ, SUFRDQI, SUFRDQC - SUFRDQ subroutine

DISTQ, DISTQC - DISTQ subroutine

SREPOUT, OPENOUT, CLOSOUT - SREPOUT subroutine

The HIS34602 Source Module - This source module is the SREPRLG subroutine of CREATE-SUFFREP. It reads the sufficiency report file built by SREPSUF and fills in roadlog data. A label variable is passed (see HIS34601 above). The source module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

RLGRDQ, RLGRDQI, RLGRDQT, RLGRDQL, RLGRDQC - RLGRDQ subroutine

SREPIN, OPENIN, CLOSIN - SREPIN subroutine

SREPOUT, OPENOUT, CLOSOUT - SREPOUT subroutine

INCNTY - INCNTY subroutine

CVTSURF - CVTSURF subroutine

The HIS346Ø3 Source Module - This source module is the SREPTRF subroutine of CREATE-SUFFREP. It fills traffic data into the report file. The calling sequence is identical to HIS346Ø1 above. The source module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

VEHMILE, VEHMILC - VEHMILE subroutine

SREPIN, OPENIN, CLOSIN - SREPIN subroutine

SREPOUT, OPENOUT, CLOSOUT - SREPOUT subroutine

The HIS346Ø4 Source Module - This source module is the SREPACC subroutine of CREATE-SUFFREP. It fills accident data into the report file. The calling sequence is identical to HIS346Øl above. The source module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

ACDRDQ, ACDRDQI, ACDRDQC - ACDRDQ subroutine

TRFRDQ, TRFRDQI, TRFRDQC - TRFRDQ subroutine

SREPIN, OPENIN, CLOSIN - SREPIN subroutine

SREPOUT, OPENOUT, CLOSOUT - SREPOUT subroutine

The HIS34605 Source Module - This source module is the SREPCAL subroutine of CREATE-SUFFREP. It fills in data items that are calculated from the data stored into the report file by the earlier phases. The calling sequence is identical to HIS34601 above. The source module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

TRRRDQ, TRRRDQF, TRRRDQX, TRRRDQC - TRRRDQ subroutine

GETSUFF - GETSUFF subroutine

GETDAY - GETDAY subroutine

SREPIN, OPENIN, OPENOUT - SREPIN subroutine

SREPOUT, OPENOUT, CLOSOUT - SREPOUT subroutine

The HIS34606 Source Module - This source module is the SREPLOD subroutine of CREATE-SUFFREP. It loads the sufficiency report file as built by the previous phases into indexed-sequential format. The calling sequence is identical to HIS34601 above. The source module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine SREPIN, OPENIN, CLOSIN - SREPIN subroutine SREPOUT, OPENOUT, CLOSOUT - SREPOUT subroutine

The HIS346Ø7 Source Module - This source module is the SREPERR subroutine of CREATE-SUFFREP. It is an error-analysis phase that is given control if an error is detected. No arguments are passed to SREPERR. The source module contains the following external references:

PRINTER, PRINT, PRINTA - PRINT subroutine

SFRWRQ, SFRWRQC - SFRWRQ subroutine

PRNTSFR - PRNTSFR subroutine

CLOSIN - SREPIN subroutine

CLOSOUT - SREPOUT subroutine

The HIS34608 Source Module - This source module is the SREPIN subroutine of CREATE-SUFFREP. It reads input records for the processing phases. Input can be from the indexed-sequential file or from a scratch file built from a preceding phase, depending upon the RESTART parameter specified on the command. It has entry points SREPIN, OPENIN, AND CLOSIN. OPENIN is called to open the file - no arguments are passed. SREPIN is called to read a record - a pointer and the error label are passed. CLOSIN is called to close the file - no arguments are passed. SREPIN contains the following external references:

SFRRDQ, SFRRDQI, SFRRDQC - SFRRDQ subroutine

The HIS34609 Source Module - SREPOUT writes records for the processing phases. Output is to a scratch file for all phases except SREPLOD, when output is to the indexed-sequential report file. The subroutine has entry points SREPOUT, OPENOUT, and CLOSOUT. Calling sequences are identical to HIS34608.

The HIS34600 Load Module - The CREATE-SUFFREP load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø42	CVTSURF subroutine
*	HIS21Ø52	GETSUFF subroutine
*	HIS21142	INCNTY subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS31001	TRFRDQ interface
*	HIS31Ø21	TRRRDQ interface
*	HIS31100	VEHMILE subroutine
*	HIS32Ø25	DISTQ interface
*	HIS33Ø21	ACDRDQ interface
*	HIS34ØØ1	SUFRDQ interface
*	HIS34Ø21	SFRRDQ interface
	HIS34Ø22	SFRWRQ subroutine
*	HIS34100	PRNTSFR subroutine
	HIS346ØØ	CREATE-SUFFREP mainline
	HIS346Ø1	CREATE-SUFFREP SREPSUF
	HIS346Ø2	CREATE-SUFFREP SREPRLG
	HIS346Ø3	CREATE-SUFFREP SREPTRF
	HIS346Ø4	CREATE-SUFFREP SREPACC
	HIS346Ø5	CREATE-SUFFREP SREPCAL
	HIS346Ø6	CREATE-SUFFREP SREPLOD
	HIS346Ø7	CREATE-SUFFREP SREPERR
	HIS346Ø8	CREATE-SUFFREP SREPIN
	HIS346Ø9	CREATE-SUFFREP SREPOUT

^{*} Stored in HIS.REL4PT \emptyset to allow inclusion by automatic call.

The LIST-SUFFREP Program

Source			
Module	Language	Function	
HIS3462Ø	PL/I	LIST-SUFFREP	mainline
Load	Entry	I i hwawu	Function
Module	Point	Library	Function
HIS3462Ø	PLISTART	HIS.REL4PTØ	LIST-SUFFREP

The HIS34620 Source Module - This source module is the LIST-SUFFREP mainline program. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST, DUMP - PRINT subroutine SFRRDQ, SFRRDQI, SFRRDQC - SFRRDQ subroutine PRNTSFR - PRNTSFR subroutine

The HIS34620 Load Module - The LIST-SUFFREP load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS34Ø21	SFRRDQ interface
*	HIS341ØØ	PRNTSFR subroutine
	HIS3462Ø	LIST-SUFFREP

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE Program

Source Module	Language	Function	
HIS34700 HIS34701 HIS34702 HIS34703 HIS34710 HIS34712	PL/I PL/I PL/I PL/I PL/I PL/I	UPDATE, FUNCTI	
Load Module	Entry Point	Library	Function
HIS347ØØ HIS347Ø1 HIS347Ø2 HIS347Ø3	PLISTART PLISTART PLISTART PLISTART	HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	UPDATE, FUNCTION=DELETE UPDATE, FUNCTION=INSERT UPDATE, FUNCTION=NEW-KEY UPDATE, FUNCTION=REWRITE

The HIS34700 Source Module - This source module is the mainline program of UPDATE, FUNCTION=DELETE. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDGS, SETINST - PRINT subroutine SUFRWB, SUFRWBD, SUFRWBC - SUFRWB subroutine SUFRDC, SUFRDCD, SUFRDCI - SUFRDC subroutine

The HIS347Øl Source Module - This source module is the mainline program of UPDATE, FUNCTION=INSERT. It contains the following external references:

PRINTER, PRINT, SETHDGS, SETINST - PRINT subroutine

SUFINB, SUFINBC - SUFINB subroutine

SUFCVT - SUFCVT subroutine

SUFEDIT - SUFEDIT subroutine

SUFRDC, SUFRDCI - SUFRDC subroutine

The HIS347Ø2 Source Module - This source module is the mainline program of UPDATE, FUNCTION=NEW-KEY. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDGS, SETINST - PRINT subroutine SUFINB, SUFINBN, SUFINBC - SUFINB subroutine SUFRDC, SUFRDCN, SUFRDCI - SUFRDC subroutine

The HIS347Ø3 Source Module - This source module is the mainline program of UPDATE, FUNCTION-REWRITE. It contains the following external references:

PRINTER, PRINT, SETPOSA, SETHDGS, SETINST - PRINT subroutine

SUFRDC, SUFRDCI - SUFRDC subroutine

SUFCVT, SUFCVTA - SUFCVT subroutine

REWRITE, REWRITF - REWRITE subroutine

SUFEDIT - SUFEDIT subroutine

SUFRWB, SUFRWBR, SUFRWBC - SUFRWB subroutine

The HIS3471Ø Source Module - This source module is the SUFRDC subroutine. It has entry points SUFRDC, SUFRDCD, SUFRDCN, and SUFRDCI. SUFRDCI is called to open the file - a char(8) ddname is passed. The other entry points are called to read a record - SUFRDCD by delete, SUFRDCN by new-key, and SUFRDC by the other functions. A pointer is passed. SUFRDC contains the following external references: PRINTER, PRINT, PRINTA, DUMP - PRINT subroutine.

The HIS34712 Source Module - This source module is the SUFEDIT subroutine. It is called to perform edit checks on a sufficiency record. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

DATEDIT - DATEDIT subroutine

When called, a pointer which contains an address of a sufficiency record and a binary fixed (15) variable are passed. A return code is passed back in the binary variable:

- Ø No errors or warnings detected
- 1 One or more warnings but no severe errors detected
- 2 One or more severe errors detected

The HIS34700 Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
	HIS34ØØ3	SUFRWB subroutine
	HIS347ØØ	UPDATE, FUNCTION=DELETE mainline
	HIS3471Ø	SUFRDC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS34701 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

	Source Module	Function	
*	HIS2ØØ5Ø HIS2ØØ58 HIS2Ø9Ø2 HIS2Ø9Ø3 HIS34ØØ2	PRINT interface GETLIST subroutine GETDATE subroutine DATEDIT subroutine SUFINB subroutine	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.
*	HIS34701 HIS34710 HIS34711 HIS34712	UPDATE, FUNCTION=INSERT SUFRDC subroutine SUFCVT subroutine SUFEDIT subroutine	marniine

The HIS34702 Load Module - The UPDATE, FUNCTION=NEW-KEY load module contains the following source modules:

Source	
Module	Function
HIS2ØØ5Ø	PRINT interface
HIS2ØØ58	GETLIST subroutine
HIS2Ø9Ø2	GETDATE subroutine
HIS34ØØ2	SUFINB subroutine
HIS347Ø2	UPDATE, FUNCTION=NEW-KEY mainline
HIS3471Ø	SUFRDC subroutine
	HIS2ØØ5Ø HIS2ØØ58 HIS2Ø9Ø2 HIS34ØØ2 HIS347Ø2

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS347Ø3 Load Module - The UPDATE, FUNCTION=REWRITE load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS21Ø65	REWRITE subroutine
	HIS34ØØ3	SUFRWB subroutine
	HIS347Ø3	UPDATE, FUNCTION=REWRITE mainline
	HIS3471Ø	SUFRDC subroutine
*	HIS34711	SUFCVT subroutine
	HIS34712	SUFEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The COPY Program

Source

Module	Languag	e Function	
HIS3472Ø	Assemb1	er COPY main	line
Load	Entry		
Module	Point	Library	Function
HTS34720	COPY	HIS.REL4PTØ	COPY

The HIS3472Ø Source Module - This source module is the mainlinb program of COPY. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
BACKUP - BACKUP subroutine

The HIS34720 Load Module - The COPY load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
	HIS3472Ø	COPY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE Program

Source

Module	Language	Function	<u>1</u>
HIS34721	Assembler	CREATE 1	mainline
Load	Entry		
Module_	Point	Library	Function
HTS34721	CREATE	HTS.REL4PT	D CREATE

The HIS34721 Source Module - This source module is the mainline program of CREATE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
LOAD - LOAD subroutine

The HIS34721 Load Module - The CREATE load module contains the following source modules:

	Source	
	_Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø991	LOAD subroutine
	HIS34721	CREATE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The REORGANIZE Program

Source			
Module	Language	Function	<u> </u>
HIS34722	Assemble	er REORGANI	ZE mainline
Load Module	Entry Point	Library	Function
HIS34722	REORG	HIS.REL4PTØ	REORGANIZE

The HIS34722 Source Module - This source module is the mainline program of REORGANIZE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

BACKUP - BACKUP subroutine

LOAD - LOAD subroutine

The HIS34722 Load Module - The REORGANIZE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
*	HIS2Ø991	LOAD subroutine
	HIS34722	REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Source			
Module	Language	Function	
HIS34731	PL/I	LIST mainline	
Load	Entry		
Module	Point	Library	Function
HIS34731	PLISTART	HIS.REL4PTØ	LIST

The HIS34731 Source Module - This program is the mainline program of LIST. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDGS, SETINST, DUMP - PRINT subroutine SUFRD, SUFRDF, SUFRDC - SUFRD subroutine

The HIS34731 Load Module - The LIST load module contains the following source modules:

	Source	
	Module	Function
*	HIS20050	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS34Ø11	SUFRD interface
	HIS34731	LIST mainl i ne

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

CHAPTER 8

TRAFFIC SUBSYSTEM

The traffic subsystem is also known as the HIS31 subsystem. The names of the source modules and load modules of the traffic subsystem have names of the format HIS31xxx, where xxx is a 3-digit number.

This chapter describes each of the source modules and load modules of the traffic subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining the programs. Use of the programs and subroutines is described in the other HIS Release 4.0 manuals.

The TRFRDQ Subroutine

Source Module	Language	Function		
HIS31ØØØ HIS31ØØ1	Assembler Assembler	TRFRDQ subro		
Load Module	Entry Point	Library	Access Name	Function
HIS31ØØØ TRFRDQ	TRFRDQE	HIS:REL4PTØ HIS:SUBRTN4	TRFRDQ 	TRFRDQ subroutine TRFRDQ interface

The HIS31000 Source Module - This source module is the TRFRDQ subroutine. It is designed as a dynamic subroutine - one that is loaded into core when needed rather than link-edited with the calling program. The source module is stored only in the HIS31000 load module so that only one link-edit is needed if the source module is altered. The source module contains the following external references:

PRINT, PRINTER, DUMP - PRINT subroutine

The HIS31001 Source Module - This source module is the TRFRDQ interface. It is link-edited with programs that call TRFRDQ. When called, it loads the TRFRDQ subroutine into core and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The HIS31000 Load Module - This load module contains the following source modules:

Source
Module Function

* HIS20050 PRINT interface

* HIS20058 GETLIST subroutine

* HIS20905 PRINTER control section
HIS31000 TRFRDQ subroutine

The TRFRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS31001 source module.

The TRFINB Subroutine

Source

Module Language Function

HIS31002 Assembler TRFINB subroutine

The HIS31 \emptyset \emptyset 2 Source Module - This source module is the TRFINB subroutine. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

GETDATE - GETDATE subroutine

The TRFRWB Subroutine

Source
Module Language Function
HIS31003 Assembler TRFRWB subroutine

The HIS31 $\emptyset\emptyset$ 3 Source Module - This source module is the TRFRWB subroutine. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

GETDATE - GETDATE subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The TRFRD Subroutine

Module_	Language	Function		
HIS31Ø1Ø HIS31Ø11	Assembler Assembler	TRFRD subro		
Load Module	Entry Point	Library	Access Name	Function
HIS31Ø1Ø TRFRD	TRFRDE	HIS.REL4PTØ HIS.SUBRTN4	TRFRD	TRFRD subroutine TRFRD interface

The HIS31010 Source Module - This source module is the TRFRD subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program). The source module resides in only one load module so that only one link-edit is necessary if the source module is modified. The source module has the following external references:

PRINTER, PRINT, DUMP, SETINST - PRINT subroutine

SELTEST, SELTESTI, SELTESTC - SELTEST subroutine

TRFRDQ, TRFRDQF, TRFRDQT, TRFRDQC, TRFRDQX - TRFRDQ subroutine

The HIS31011 Source Module - This source module is the TRFRD interface. It is link-edited with programs that call TRFRD. When called, it loads the TRFRD subroutine into core and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The HIS31010 Load Module - This load module contains the following source modules:

Source Module	Function	
* HIS2ØØ5Ø * HIS2ØØ51 * HIS2ØØ58 * HIS2Ø9Ø5 * HIS22ØØ1 * HIS31ØØ1 HIS31Ø1Ø	PRINT interface FETCH interface GETLIST subroutine PRINTER control section SELTEST interface TRFRDQ interface TRFRD subroutine	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The TRFRD Load Module - This module is stored in the HIS.SUBRTN4 library. When link-editing, it is retrieved by automatic call. It contains the HIS31Ø11 source module.

The TRRRDQ Subroutine

Source Module	Language	Function		
HIS31Ø2Ø HIS31Ø21	Assembler Assembler	TRRRDQ subr		
Load Module	Entry Point	Library	Access Name	Function
HIS31Ø2Ø TRRRDQ	TRRRDQE	HIS.REL4PTØ HIS.SUBRTN4	TRRRDQ	TRRRDQ subroutine TRRRDQ interface

The HIS31020 Source Module - This source module is the TRRRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program). It resides in only one load module. The source module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS31021 Source Module - This source module is the TRRRDQ interface. It is link-edited with programs that call TRRRDQ. When called, it loads the HIS31020 load module into core and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The HIS31020 Load Module - This load module contains the following source modules:

Source Module	Function	
* HIS2ØØ5Ø * HIS2ØØ58 * HIS2Ø9Ø5 HIS31Ø2Ø	PRINT interface GETLIST subroutine PRINTER control section TRRRDQ subroutine	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The TRRRDQ Load Module - This module is stored in the HIS.SUBRTN4 library. When link-editing, it is retrieved by automatic call. It contains the HIS31021 source module.

The TRRWRQ Subroutine

Source

Module Language Function

HIS31022 Assembler TRRWRQ subroutine

The HIS31022 Source Module - This source module is the TRRWRQ subroutine. The source module contains no external references.

The VEHMILE Subroutine

Source

Module Language Function

HIS31100 PL/I VEHMILE subroutine

Load

Module Library Function

VEHMILE HIS.SUBRTN4 VEHMILE subroutine

The HIS31100 Source Module - This source module is the VEHMILE subroutine. It contains the following external references:

TRFRDQ, TRFRDQI, TRFRDQL, TRFRDQX, TRFRDQC - TRFRDQ subroutine

DISTQ, DISTQO, DISTQC - DISTQ subroutine

PRINTER, PRINT, DUMP - PRINT subroutine

The VEHMILE Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of VEHMILE by automatic call. It contains the HIS31100 source module.

The ADT Subroutine

Source Module Language Function

HIS31101 Assembler ADT subroutine

Load

Module Library Function

ADT HIS.SUBRTN4 ADT subroutine

The HIS31101 Source Module - This source module is the ADT subroutine. It contains the following external references:

PRINT, DUMP - PRINT subroutine

DISTB, DISTBO, DISTBC - DISTB subroutine

TRFRDQ, TRFRDQL, TRFRDQX, TRFRDQF, TRFRDQC - TRFRDQ subroutine

The ADT Load Module - This load module is stored in the HIS.SUBRTN4 library to allow inclusion of the ADT subroutine by automatic call. It contains the HIS311Ø1 source module.

The TRFCVT Subroutine

Source
Module Language Function

HIS31711 PL/I TRFCVT subroutine

Load

Module Library Function

TRFCVT HIS.SUBRTN4 TRFCVT subroutine

The HIS31711 Source Module - This source module is the TRFCVT subroutine. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The TRFCVT Load Module - This load module is stored in the HIS.SUBRTN4 library. It contains the HIS31711 source module.

The TRAFFIC-BY-SECTIONS Program

Source Module	Language	Function	
HIS312ØØ	PL/I	TRAFFIC-BY-SI	ECTIONS mainline
Load	Entry	T *1	
Module	Point	Library	Function
HIS312ØØ	PLISTART	HIS.REL4PTØ	TRAFFIC-BY-SECTIONS

The HIS31200 Source Module - This source module is the mainline program of TRAFFIC-BY-SECTIONS. It contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETHDG, SETINST, SETLINK, DUMP - PRINT subroutine
RLGRDQ, RLGRDQI, RLGRDQX, RLGRDQC - RLGRDQ subroutine
TRRRDQ, TRRRDQI, TRRRDQX, TRRRDQC - TRRRDQ subroutine
INCNTY - INCNTY subroutine

The HIS31200 Load Module - The TRAFFIC-BY-SECTIONS load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21142	INCNTY subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS31Ø21	TRRRDQ interface
	HIS312ØØ	TRAFFIC-BY-SECTIONS mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUMMARY-BY-ROUTES Program

Source Module	Language	Function	
HIS312Ø1	PL/I	SUMMARY-BY-RO	OUTES mainline
Load Module	Entry Point	Library	Function
HIS312Ø1	PLISTART	HIS.REL4PTØ	SUMMARY-BY-ROUTES

The HIS31201 Source Module - This source module is the mainline program of SUMMARY-BY-ROUTES. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine
TRRRDQ, TRRRDQI, TRRRDQC - TRRRDQ subroutine

The HIS312Ø1 Load Module - The SUMMARY-BY-ROUTES load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ58	GETLIST subroutine
* HIS31Ø21	TRRRDQ interface
HIS312Ø1	SUMMARY-BY-ROUTES mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUM-BY-COUNTY Program

Module	Language	Function	
HIS312Ø2	PL/I	SUM-BY-COUNTY	mainline
Load Module	Entry Point	Library	Function
HTS31202	PLISTART	HIS RELAPTO	SIM-BY-COUNTY

The HIS31202 Source Module - This source module is the mainline program of SUM-BY-COUNTY. It contains the following external references:

PRINTER, PRINT, DUMP, SETHDG - PRINT subroutine
RLGRDQ, RLGRDQI, RLGRDQX, RLGRDQC - RLGRDQ subroutine
TRRRDQ, TRRRDQI, TRRRDQC - TRRRDQ subroutine

The HIS31202 Load Module - The SUM-BY-COUNTY load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS31Ø21	TRRRDQ interface
	HIS312Ø2	SUM-BY-COUNTY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE-TRAFREP Program

Source			
Module	Language	Function	
HIS316ØØ	PL/I	CREATE-TRAFRI	EP mainline
Load	Entry		
Module	Point	Library	Function
HIS31600	PLISTART	HIS.REL4PTØ	CREATE-TRAFREP

The HIS316 $\emptyset\emptyset$ Source Module - This source module is the mainline program of CREATE-TRAFREP. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine

TRFRDQ, TRFRDQF, TRFRDQR, TRFRDQX, TRFRDQC - TRFRDQ subroutine

POINTQ, POINTQC - POINTQ subroutine

TRRWRQ, TRRWRQC - TRRWRQ subroutine

The HIS31600 Load Module - The CREATE-TRAFREP load module contains the following source modules:

ce			
<u>le</u> <u>F</u>	uncti	on	
	RINT	interface	2
Ø51 F	ETCH	interface	2
Ø58 G	ETLIS	T subrout	ine
ØØ1 T	RFRDQ	interfac	ce
Ø22 T	RRWRQ	subrouti	ine
6ØØ C	REATE	-TRAFREP	mainline
Ø21 P	OINTQ	interfac	ce
֡	050 F 051 F 058 G 001 T 022 T	Le Functi 050 PRINT 051 FETCH 058 GETLIS 001 TRFRDQ 022 TRRWRQ 600 CREATE	le Function 050 PRINT interface 051 FETCH interface 058 GETLIST subrout 001 TRFRDQ interface 022 TRRWRQ subrout 0600 CREATE-TRAFREP

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST-TRAFREP Program

Source Module	Language	Function	
HIS316Ø1	PL/I	LIST-TRAFREP	mainline
Load	Entry		
Module	Point	Library	Function
HIS316Ø1	PLISTART	HIS.REL4PTØ	LIST-TRAFREP

The HIS316Øl Source Module - This source module is the mainline program of LIST-TRAFREP. It contains the following external references:

PRINTER, PRINT, SETPOSA, SETHDG, SETINST, DUMP - PRINT subroutine
TRRRDQ, TRRRDQI, TRRRDQX, TRRRDQC - TRRRDQ subroutine

The HIS31601 Load Module - The LIST-TRAFREP load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS31Ø21	TRRRDQ interface
	HIS316Ø1	LIST-TRAFREP mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE Programs

Source Module	Language	Function	
HIS31700 HIS31701 HIS31702 HIS31703 HIS31710 HIS31712	PL/I PL/I PL/I PL/I PL/I PL/I	UPDATE, FUNCT:	
Load Module	Entry Point	Library	Function
HIS317ØØ HIS317Ø1 HIS317Ø2 HIS317Ø3	PLISTART PLISTART PLISTART PLISTART	HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	UPDATE, FUNCTION=DELETE UPDATE, FUNCTION=INSERT UPDATE, FUNCTION=NEW-KEY UPDATE, FUNCTION=REWRITE

The HIS31700 Source Module - This source module is the mainline program for the delete function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

TRFRWB, TRFRWBD, TRFRWBC - TRFRWB subroutine

TRFRDC, TRFRDCD, TRFRDCI - TRFRDC subroutine

The HIS317Ø1 Source Module - This source module is the mainline program for the insert function. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine

TRFINB, TRFINBC - TRFINB subroutine

TRFRDC, TRFRDCI - TRFRDC subroutine

TRFCVT - TRFCVT subroutine

TRFEDIT - TRFEDIT subroutine

The HIS317 \emptyset 2 Source Module - This source module is the mainline program for the new-key function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

TRFINB, TRFINBN, TRFINBC - TRFINB subroutine

TRFRDC, TRFRDCI, TRFRDCN - TRFRDC subroutine

The HIS317Ø3 Source Module - This source module is the mainline program of the rewrite function. It contains the following external references:

PRINTER, PRINT, SETPOSA, SETHDG, SETINST, DUMP - PRINT subroutine

TRFRDC, TRFRDCI - TRFRDC subroutine

TRFCVTA, TRFCVT - TRFCVT subroutine

REWRITE, REWRITF - REWRITE subroutine

TRFEDIT - TRFEDIT subroutine

TRFRWB, TRFRWBR, TRFRWBC - TRFRWRB subroutine

The HIS3171® Source Module - This source module is the TRFRDC subroutine. It reads data cards for the mainline programs. The calling program first calls entry point TRFRDCI passing a char(8) ddname to use when opening the file.

To read a card, the calling programs calls either TRFRDCD (delete function), TRFRDCN (new-key function), or TRFRDC (insert and rewrite functions). A pointer is passed when reading. The pointer is set to the address of a data card (delete or new-key) or to the address of a data string (insert and rewrite functions). The format of a data string is provided with the description of the TRFCVT subroutine in the publication Highway Information System Release 4.0:

Record Formats and Subroutines. The source module has the following external references:

PRINTER, PRINT, PRINTA, DUMP - PRINT subroutine

DUMPDD - DUMPDD subroutine

The HIS31712 Source Module - This source module is the TRFEDIT subroutine. It performs edit checks on a traffic record. When called, a pointer to a traffic record and a binary fixed (15) return code are passed. Return codes are:

- Ø No errors or warnings detected
- 1 One or more warnings but no severe errors detected
- 2 One or more severe errors detected

The source module contains the following external references:

PRINTER, PRINT - PRINT subroutine

DATEDIT - DATEDIT subroutine

The HIS31700 Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
	HIS31ØØ3	TRFRWB subroutine
	HIS317ØØ	UPDATE, FUNCTION=DELETE mainline
	HIS31710	TRFRDC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS317Ø1 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

	Source	
	Module	Function
þ	* HIS2ØØ5Ø	PRINT interface
7	* HIS2ØØ57	DUMPDD interface
þ	* HIS2ØØ58	GETLIST subroutine
b	* HIS2Ø9Ø2	GETDATE subroutine
þ	* HIS2Ø9Ø3	DATEDIT subroutine
	HIS31ØØ2	TRFINB subroutine
	HIS317Ø1	UPDATE, FUNCTION=INSERT mainline
	HIS3171Ø	TRFRDC subroutine
7	* HIS31711	TRFCVT subroutine
	HIS31712	TRFEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS31702 Load Module - The UPDATE, FUNCTION=NEW-KEY load module contains the following source modules:

	Source Module	Function			
*	HIS2ØØ58 HIS2Ø9Ø2	GETLIST subroutine GETDATE subroutine			HIS.SUBRTN4 to allow by automatic call.
	HIS317Ø2	TRFINB subroutine UPDATE, FUNCTION=NEW-KEY TRFRDC subroutine	ma	inline	

The HIS317Ø3 Load Module - The UPDATE, FUNCTION=REWRITE load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS21Ø65	REWRITE subroutine
	HIS31ØØ3	TRFRWB subroutine
	HIS317Ø3	UPDATE, FUNCTION=REWRITE mainline
	HIS3171Ø	TRFRDC subroutine
*	HIS31711	TRFCVT subroutine
	HIS31712	TRFEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE-BY-YEAR Program

Source Module	Language	Function	
HIS317Ø4	PL/I	UPDATE-BY-YEA	AR mainline
Load	Entry		
Module	Point	Library	Function
HIS317Ø4	PLISTART	HIS.REL4PTØ	UPDATE-BY-YEAR

The HIS317Ø4 Source Module - This source module is the mainline program of UPDATE-BY-YEAR. It contains the following external references:

PRINTER, PRINT, SETHDG, DUMP - PRINT subroutine
GETDATE - GETDATE subroutine

The HIS31704 Load Module - The UPDATE-BY-YEAR load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
	HIS317Ø4	UPDATE-BY-YEAR mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The COPY Program

Source Module	Language	Function	
HIS3172Ø	Assembler	COPY mainli	ine
Load Module	Entry Point	Library	Function
HIS3172Ø	COPY	HIS.REL4PTØ	COPY

The HIS31720 Source Module - This source module is the copy mainline. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
BACKUP - BACKUP subroutine

The HIS31720 Load Module - The COPY load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
	HIS3172Ø	COPY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE Program

Source
Module Language Function

HIS31721 Assembler CREATE mainline

Load Entry
Module Point Library Function

HIS31721 CREATE HIS.REL4PTØ CREATE

The HIS31721 Source Module - This source module is the mainline program of CREATE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
LOAD - LOAD subroutine

The HIS31721 Load Module - The CREATE load module contains the following source modules:

Source	
<u>Module</u>	Function
HIS2ØØ5Ø	PRINT interface
HIS2ØØ57	DUMPDD interface
HIS2ØØ58	GETLIST subroutine
HIS2Ø9Ø5	PRINTER control section
HIS2Ø991	LOAD subroutine
HIS31721	CREATE mainline
	Module HIS2ØØ5Ø HIS2ØØ57 HIS2ØØ58 HIS2Ø9Ø5 HIS2Ø9Ø5

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The REORGANIZE Program

Source

Module	Language	Function	
HIS31722	Assembler	REORGANIZE	mainline
Load	Entry		
Module	Point	Library	Function
HIS31722	REORG	HIS.REL4PTØ	REORGANIZE

The HIS31722 Source Module - This source module is the mainline program of REORGANIZE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

BACKUP - BACKUP subroutine

LOAD - LOAD subroutine

The HIS31722 Load Module - The REORGANIZE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
*	HIS2Ø991	LOAD subroutine
	HIS31722	REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The DUMP Program

Module	Language	Function	
HIS3173Ø	PL/I	DUMP mainline	
Load	Entry		
<u>Module</u>	Point	<u>Library</u>	<u>Function</u>
HTS 31730	PLISTART	HIS.SUBRTN4	DUMP

The HIS3173Ø Source Module - This source module is the mainline program of DUMP. It contains the following external references:

PRINTER, PRINT, SETHDG, DUMP - PRINT subroutine

TRFCVT, TRFCVTA - TRFCVT subroutine

TRFRD, TRFRDF, TRFRDC - TRFRD subroutine

The HIS31730 Load Module - The DUMP load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS31Ø11	TRFRD interface
*	HIS31711	TRFCVT subroutine
	HIS3173Ø	DUMP mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Source Module	Language	Function	
HIS31731	PL/I	LIST mainline	
Load Module	Entry Point	Library	Function
HTS31731	PLISTART	HTS RELAPTO	LTST

The HIS31731 Source Module - This source module is the mainline program of LIST. It contains the following external references:

PRINTER, PRINT, SETPOSA, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

TRFRD, TRFRDF, TRFRDC - TRFRD subroutine

RLGRDQ, RLGRDQF, RLGRDQX, RLGRDQC - RLGRDQ subroutine

POINTQ, POINTQC - POINTQ subroutine

The HIS31731 Load Module - The LIST load module contains the following source modules:

Source Module	Function	
* HIS2ØØ5Ø	PRINT interface	
* HIS2ØØ51	FETCH interface	* Stored in HIS.SUBRTN4 to allow
* HIS2ØØ58	GETLIST subroutine	inclusion by automatic call.
* HIS3ØØØ1	RLGRDQ interface	·
* HIS31Ø11	TRFRD interface	
HIS31731	LIST mainline	
* HIS32Ø21	POINTQ interface	

The KEY-LIST Program

Source Module	Language	Function	
HIS31732	PL/I	KEY-LIST mair	nline
Load	Entry		_
<u>Module</u>	Point	Library	Function
HIS31732	PLISTART	HIS.REL4PTØ	KEY-LIST

The HIS31732 Source Module - This source module is the mainline program of KEY-LIST. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine
TRFRDQ, TRFRDQI, TRFRDQC - TRFRDQ subroutine

The HIS31732 Load Module - The KEY-LIST load module contains the following source modules:

Source	
Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ51	FETCH interface
* HIS2ØØ58	GETLIST subroutine
* HIS31001	TRFRDQ interface
HIS31732	KEY-LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.



CHAPTER 9

TRUE MILEAGE SUBSYSTEM

The true mileage subsystem is also known as the HIS32 subsystem. The names of source modules and load modules in the true mileage subsystem have names of the format HIS32xxx, where xxx is a 3-digit number.

This chapter describes each of the source modules and load modules of the true mileage subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs. Use of the programs and calling sequences to subroutines are documented in the other HIS Release 4.0 publications.

The TRMRDQ Subroutine

Source			
_Module	Language	Function	
HIS32000	Assembler	TRMRDQ subr	outine
HIS32001	Assembler	TRMRDQ inte	
Load	Entry		
Module	Point	Library	Function
TRMRDQ	N/A	HIS.SUBRTN4	TRMRDO interface

The HIS32000 Source Module - This source module is the TRMRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). It resides only in the TRMFILE load module (see the TRMFILE address list below). The source module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS32001 Source Module - This source module is the TRMRDQ interface. It is linked with programs that call TRMRDQ. When called, it loads TRMRDQ into storage and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The TRMRDQ Load Module - This load module is stored in the HIS.SUBRTN4 library. When link-editing, this module is retrieved by automatic call. It contains the HIS32001 source module.

The TRMRDB Subroutine

Module	Language	Function	
HIS32ØØ2 HIS32ØØ3	Assembler Assembler	TRMRDB subr	
Load Module	Entry Point	Library	Function
TRMRDB	N/A	HIS.SUBRTN4	TRMRDB interface

The HIS32002 Source Module - This source module is the TRMRDB subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). It resides only in the TRMFILE load module (see "The TRMFILE Address List" below). The source module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

The HIS32003 Source Module - This source module is the TRMRDB interface. It is linked with programs that call TRMRDB. When called, it retrieves the TRMRDB subroutine into storage and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The TRMRDB Load Module - This load module is stored in the HIS.SUBRTN4 library. It allows linking with the TRMRDB interface using automatic call. The load module contains the HIS32003 source module.

The TRMRDR Subroutine

Source

Module Language Function

HIS32004 Assembler TRMRDR subroutine

The HIS32 $\emptyset\emptyset4$ Source Module - This source module is the TRMRDR subroutine. It contains the following source references:

PRINTER, PRINT - PRINT subroutine
TRMRDQ, TRMRDQI, TRMRDQC - TRMRDQ subroutine

The TRMINB Subroutine

Source

Module Language Function

HIS32005 Assembler TRMINB subroutine

The HIS32 \emptyset \emptyset 5 Source Module - This source module is the TRMINB subroutine. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
GETDATE - GETDATE subroutine

The TRMRWB Subroutine

Source

Module Language Function

HIS32006 Assembler TRMRWB subroutine

The HIS32006 Source Module - This source module is the TRMRWB subroutine. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
GETDATE - GETDATE subroutine

The TRMRWQ Subroutine

Source

Module Language Function

HIS32007 Assembler TRMRWQ subroutine

The HIS32007 Source Module - This source module is the TRMRWQ subroutine. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
GETDATE - GETDATE subroutine

The POINTQ Subroutine

Source Module Language Function

HIS32020 Assembler POINTQ subroutine

HIS32Ø21 Assembler POINTQ interface

Load

Module Library Function

POINTQ HIS.SUBRTN4 POINTQ interface

The HIS32020 Source Module - This source module is the POINTQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). The source module contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
TRMRDR, TRMRDRC, TRMRTE - TRMRDR subroutine

The HIS32021 Source Module - This module is the PCINTQ interface. It is linked with programs that call POINTQ. When called, it loads POINTQ into storage and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The POINTQ Load Module - This load module is stored in the HIS.SUBRTN4 library. It allows inclusion of the POINTQ interface by automatic call. It contains the HIS32021 source module.

The POINTB Subroutine

Source Module	Language	Function
HIS32Ø22 HIS32Ø23	Assembler Assembler	POINTB subroutine POINTB interface
Load Module	Library	Function
POINTB	HIS.SUBRTN4	POINTB interface

The HIS32022 Source Module - This source module is the POINTB subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine

TRMRDQ, TRMRDQI, TRMRDQP, TRMRDQX, TRMRDQC - TRMRDQ subroutine

The HIS32023 Source Module - This source module is the POINTB interface. It is linked with programs that call POINTB. When called, it loads POINTB into storage and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The POINTB Load Module - This load module is stored in the HIS.SUBRTN4 library. It allows inclusion of POINTB by automatic call. It consists of the HIS23Ø23 source module.

The DISTQ Subroutine

Source Module	Language	Function
HIS23Ø24 HIS23Ø25	Assembler Assembler	DISTQ subroutine DISTQ interface
Load Module	Library	Function
DISTQ	HIS.SUBRTN4	DISTO interface

The HIS23024 Source Module - This source module is the DISTQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
TRMRDR, TRMRDRC, TRMRTE - TRMRDR subroutine

The HIS23025 Source Module - This source module is the DISTQ interface. It is linked with programs that call DISTQ. When called, it loads DISTQ into storage and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The DISTQ Load Module - This load module is stored in the HIS.SUBRTN4 library. It allows inclusion of DISTQ by automatic call. It consists of the HIS23025 source module.

The DISTB Subroutine

Source Module	Language	Function
HIS23Ø26 HIS23Ø27	Assembler Assembler	DISTB subroutine DISTB interface
Load Module	Library	Function
DISTB	HIS.SUBRTN4	DISTR interface

The HIS32026 Source Module - This source module is the DISTB subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than linked with the calling program). It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
TRMRDQ, TRMRDQI, TRMRDQX, TRMRDQC - TRMRDQ subroutine

The HIS32027 Source Module - This source module is the DISTB interface. It is linked with programs that call DISTB. When called, it loads the DISTB subroutine into storage and passes control to it. The source module contains the following external reference:

FETCH - FETCH subroutine

The DISTB Load Module - This load module is stored in the HIS.SUBRTN4 load library. It allows inclusion of DISTB by automatic call. The load module consists of the HIS32027 source module.

The TRMFILE Address List

Module HIS32Ø3Ø	<u>Language</u> Assembler	Function TRMFILE add	lress list	
Load Module HIS32Ø3Ø	Entry Point TRMFILE	Library HIS.REL4PTØ	Access Name TRMFILE	Function True mileage dynamic subroutines

The HIS32Ø3Ø Source Module - This source module is an address list that allows all of the true mileage dynamic subroutines to be stored in a single load module. External references include TRMRDQE, TRMRDBE, POINTQE, POINTBE, DISTQE, and DISTBE.

The HIS32Ø3Ø Load Module - The TRMFILE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø5	PRINTER control section
	HIS32ØØØ	TRMRDQ subroutine
	HIS32ØØ2	TRMRDB subroutine
	HIS32ØØ4	TRMRDR subroutine
	HIS32Ø2Ø	POINTQ subroutine
	HIS32Ø22	POINTB subroutine
	HIS32Ø24	DISTQ subroutine
	HIS32Ø26	DISTB subroutine
	HIS32Ø3Ø	TRMFILE address list

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The TRMCVT Subroutine

Source Module	Tanassaaa	Function
Module	Language	runction
HIS32711	PL/I	TRMCVT subroutine
Load		
Module	Library	Function
TRMCVT	HIS.SUBRTN	TRMCVT subroutine

The HIS32711 Source Module - This source module is the TRMCVT subroutine. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The TRMCVT Load Module - This load module resides in the HIS.SUBRTN4 library to allow inclusion of TRMCVT by automatic call. It consists of the HIS32711 source module.

The UPDATE Program

Source Module	Language	Function	
HIS327ØØ HIS327Ø1 HIS327Ø3 HIS327Ø4 HIS3271Ø HIS32712	PL/I PL/I PL/I PL/I PL/I PL/I	UPDATE, FUNCTION=DELETE mainline UPDATE, FUNCTION=INSERT mainline UPDATE, FUNCTION=REWRITE mainline UPDATE, FUNCTION=SEQL-REWRITE mainline TRMRDC subroutine TRMEDIT subroutine	
Load Module	Entry Point	Library	Function
HIS32700 HIS32701 HIS32703 HIS32704	PLISTART PLISTART PLISTART PLISTART	HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ HIS.REL4PTØ	UPDATE, FUNCTION=DELETE UPDATE, FUNCTION=INSERT UPDATE, FUNCTION=REWRITE UPDATE, FUNCTION=SEQL⊢REWRITE

The HIS32700 Source Module - This source module is the mainline program of the delete function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

TRMRWB, TRMRWBD, TRMRWBC - TRMRWB subroutine

TRMRDC, TRMRDCI - TRMRDC subroutine

The HIS327Ø1 Source Module - This source module is the mainline program of the insert function. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine
TRMINB, TRMINBC - TRMINB subroutine

TRMRDC, TRMRDCI - TRMRDC subroutine

TRMCVT - TRMCVT subroutine

TRMEDIT - TRMEDIT subroutine

The HIS327Ø3 Source Module - This source module is the mainline program of the rewrite function. It contains the following external references:

PRINTER, PRINT, SETPOSA, SETHDG, SETINST, DUMP - PRINT subroutine
TRMRDC, TRMRDCI - TRMRDC subroutine

TRMCVT, TRMCVTA - TRMCVT subroutine

REWRITE, REWRITF - REWRITE subroutine

TRMEDIT - TRMEDIT subroutine

TRMRWB, TRMRWBR, TRMRWBC - TRMRWB subroutine

The HIS32704 Source Module - This module is the mainline program of the SEQL-REWRITE function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

TRMRDC, TRMRDCI - TRMRDC subroutine

TRMRWQ, TRMRWQF, TRMRWQR, TRMRWQC - TRMRWQ subroutine

DATEDIT - DATEDIT subroutine

The HIS3271Ø Source Module - This module is the TRMRDC subroutine. It reads data cards for the mainline UPDATE programs. It contains entry points TRMRDC and TRMRDCI. TRMRDCI is called to open the card file - a char(8) ddname is passed. TRMRDC is called to read a record - a pointer is passed. Upon return from TRMRDC, the pointer contains the address of a data card. A null pointer is returned at end-of-file. The subroutine contains the following external references:

PRINTER, PRINT, PRINTA, DUMP - PRINT subroutine

DUMPDD - DUMPDD subroutine

The HIS32712 Source Module - This module is the TRMEDIT subroutine. It checks a true mileage record for data errors. The calling program passes a pointer that contains a record address and a binary fixed(15) return code. The return code is set to one of the following values:

- Ø No errors or warnings detected
- 1 One or more warnings but no severe errors detected
- 2 One or more severe errors detected

The source module contains the following external references:

PRINTER, PRINT - PRINT subroutine

DATEDIT - DATEDIT subroutine

The HIS32700 Load Module - The UPDATE, FUNCTION=DELETE load module contains the following source modules:

Source	
Module	Function
HIS2ØØ5Ø	PRINT interface
HIS2ØØ57	DUMPDD interface
HIS2ØØ58	GETLIST subroutine
HIS2Ø9Ø2	GETDATE subroutine
HIS32ØØ6	TRMRWB subroutine
HIS327ØØ	UPDATE, FUNCTION=DELETE mainline
HIS3271Ø	TRMRDC subroutine
	Module HIS2ØØ5Ø HIS2ØØ57 HIS2ØØ58 HIS2Ø9Ø2 HIS32ØØ6 HIS327ØØ

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS327Ø1 Load Module - The UPDATE, FUNCTION=INSERT load module contains the following source modules:

	Source	
	Module	Function
al.	HTG0dd5d	DD TAME :
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
	HIS32ØØ5	TRMINB subroutine
	HIS327Ø1	UPDATE, FUNCTION=INSERT mainline
	HIS3271Ø	TRMRDC subroutine
*	HIS32711	TRMCVT subroutine
	HIS32712	TRMEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS327Ø3 Load Module - The UPDATE, FUNCTION=REWRITE load module contains the following source modules:

Source	
<u> Module</u>	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ53	TABLRD interface
* HIS2ØØ57	DUMPDD interface
* HIS2ØØ58	GETLIST subroutine
* HIS2Ø9Ø2	GETDATE subroutine
* HIS2Ø9Ø3	DATEDIT subroutine

(continued on next page)

	Source	
	Module	<u>Function</u>
*	HIS21Ø65	REWRITE subroutine
	HIS32ØØ6	TRMRWB subroutine
	HIS327Ø3	UPDATE, FUNCTION=REWRITE
	HIS3271Ø	TRMRDC subroutine
*	HIS32711	TRMCVT subroutine
	HIS32712	TRMEDIT subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS32704 Load Module - The UPDATE, FUNCTION=SEQL-REWRITE load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
	HIS32ØØ7	TRMRWQ subroutine
	HIS327Ø4	UPDATE, FUNCTION=SEQL-REWRITE
	HIS3271Ø	TRMRDC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The COPY Program

Source Module	Language	Function	
HIS3272Ø	Assembler	COPY mainli	ine
Load	Entry		
Module	<u>Point</u>	<u>Library</u>	Function
HIS32720	COPY	HIS.REL4PTØ	COPY

The HIS3272Ø Source Module - This module is the mainline program of COPY. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine
BACKUP - BACKUP subroutine

The HIS32720 Load Module - The COPY load module contains the following source modules:

	Source	
	Module	Function
	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST interface
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS2Ø99Ø	BACKUP subroutine
	HIS3272Ø	COPY mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The CREATE Program

Source Module	Language	Function	
HIS32721	Assemble:	r CREATE ma	inline
Load Module	Entry Point	Library	Function
HIS32721	CREATE	HIS.REL4PTØ	CREATE

The HIS32721 Source Module - This source module is the mainline program of CREATE. It contains the following external references:

```
PRINTER, PRINT, SETHDGS - PRINT subroutine
LOAD - LOAD subroutine
```

The HIS32721 Load Module - The CREATE load module contains the following source modules:

Source <u>Module</u>	Function	
* HIS2ØØ5Ø * HIS2ØØ57 * HIS2ØØ58 * HIS2Ø9Ø5 * HIS2Ø991 HIS32721	PRINT interface DUMPDD interface GETLIST subroutine PRINTER control section LOAD subroutine CREATE mainline	* Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The REORGANIZE Program

Source Module	Language	Function	
HIS32722	Assembler	REORGANIZE	mainline
Load Module	Entry Point	Library	Function
HIS32722	REORG	HIS.REL4PTØ	REORGANIZE

The HIS32722 Source Module - This module is the mainline program of REORGANIZE. It contains the following external references:

PRINTER, PRINT, SETHDGS - PRINT subroutine

BACKUP - BACKUP subroutine

LOAD - LOAD subroutine

The HIS32722 Load Module - The REORGANIZE load module contains the following source modules:

Function
PRINT interface
DUMPDD interface
GETLIST subroutine
GETDATE subroutine
PRINTER control section
BACKUP subroutine
LOAD subroutine
REORGANIZE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The LIST Program

Source Module	Language	Function	
Module	Language	FullCLIOII	
HIS32731	PL/I	LIST mainline	
Load	Entry		
Module	Point	Library	<u>Function</u>
HIS32731	PLISTART	HIS.REL4PTØ	LIST

The HIS32731 Source Module - This module is the mainline program of LIST. It contains the following external references:

PRINTER, PRINT, SETPOSA, SETHDG, SETINST, DUMP - PRINT subroutine TRMRDQ, TRMRDQI, TRMRDQC - TRMRDQ subroutine

The HIS32731 Load Module - The LIST load module contains the following source modules:

	Source	
	Module_	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS32001	TRMRDQ interface
	HIS32731	LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The ROADLOG-TRUMILE-EDIT Program

Source Module	Language	Function	
HIS3274Ø	PL/I	ROADLOG-TRUMILE-EDIT mainline	
Load	Entry		
Module	Point	Library	<u>Function</u>
HIS3274Ø	PLISTART	HIS.REL4PTØ	ROADLOG-TRUMILE-EDIT

The HIS3274Ø Source Module - This source module is the mainline program of ROADLOG-TRUMILE-EDIT. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETPOSA, SETHDGS, SETINST - PRINT subroutine RLGRDQ, RLGRDQI, RLGRDQX, RLGRDQC - RLGRDQ subroutine POINTQ, POINTQO, POINTQK, POINTQC - POINTQ subroutine COINKEY - COINKEY subroutine

The HIS32740 Load Module - The ROADLOG-TRUMILE-EDIT load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS3ØØØ1	RLGRDQ interface
*	HIS3Ø1ØØ	COINKEY subroutine
*	HIS32Ø21	POINTQ interface
	HIS3274Ø	ROADLOG-TRUMILE-EDIT

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

CHAPTER 10

URBAN SIGN INVENTORY SUBSYSTEM

The urban sign inventory subsystem is also known as the HIS38 subsystem. The names of source and load modules have the format HIS38xxx, where xxx is a 3-digit number.

This chapter describes the source modules and load modules of the urban sign inventory subsystem. This information is intended primarily as a guide to the source listings for use by persons maintaining these programs.

The USNRDQ Subroutine

Source Module	Language	Functio	on	
HIS38ØØØ	Assembler	USNRDQ subro	outine	
HIS38ØØ1	Assembler	USNRDQ inter	cface	
Load Module	Entry Point	Library	Access Name	Function
HIS38ØØØ	USNRDQE	HIS.REL4PTØ	USNRDQ	USNRDQ subroutine
USNRDQ		HIS.SUBRTN4		USNRDQ interface

The HIS38 $\phi\phi\phi$ Source Module - This module is the USNRDQ subroutine. It is designed as a dynamic subroutine (one that is loaded into core when needed rather than link-edited with the calling program). The subroutine resides only in the HIS38 $\phi\phi\phi$ load module so that only one link-edited it needed when the module is modified. The module contains the following external references:

CHECKDD - CHECKDD subroutine

The HIS38 ϕ 01 Source Module - This module is the USNRDQ interface. It is link-edited with programs that call USNRDQ. Its function is to retrieve the USNRDQ subroutine into core whenever it is needed. It contains the following external reference:

FETCH - FETCH subroutine

The HIS38 $\phi\phi\phi$ Load Module - This load module contains the dynamic USNRDQ subroutine. It contains the following source modules:

	Source			
	Module	Function		
	HIS2ØØ56	CHECKDD interface		
*	HIS2ØØ58	GETLIST subroutine		
	HIS38ØØØ	USNRDQ subroutine		

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The USNRDQ Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of USNRDQ by automatic call when link-editing. It contains the HIS3800 source module.

The USNRD Subroutine

Source Module	Language	Function	on	
HIS38Ø1Ø HIS38Ø11	Assembler Assembler	USNRD Subrou USNRD inter:		
Load Module	Entry Point	Library	Access Name	Function
HIS38Ø1Ø USNRD	USNRDE	HIS.REL4PTØ HIS.SUBRTN4	USNRD	USNRD subroutine USNRD interface

The HIS38 \emptyset 1 \emptyset Source Module - This module is the USNRD subroutine. It is designed as a dynamic subroutine in a similar manner as USNRDQ. The module contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine

CVTCITY - CVTCITY subroutine

CALCAGE - CALCAGE subroutine

 ${\tt USNRDQ,USNRDQF,USNRDQX,USNRDQC - USNRDQ \ subroutine}$

SELTEST, SELTESTI, SELTESTC - SELTEST subroutine

The HIS38Ø11 Source Module - This module is the USNRD interface. It is link-edited with programs that call USNRD. Its function is to retrieve the USNRD subroutine into core whenever it is needed. It contains the following external reference:

FETCH - FETCH subroutine

The HIS38 \emptyset 1 \emptyset Load Module - The dynamic USNRD load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø5	PRINTER control section
*	HIS21Ø13	CVTCITY subroutine
*	HIS22ØØ1	SELTEST interface
*	HIS38ØØ1	USNRDQ interface
	HIS38Ø1Ø	USNRD subroutine
*	HIS381Ø1	CALCAGE subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The USNRD Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of USNRD by automatic call when link-editing. It contains the HIS38011 source module.

The USNXY Subroutine

source		
Module	Language	Function
HIS381ØØ	PL/I	USNXY subroutine

The HIS381 $\phi\phi$ Source Module - This module is the USNXY subroutine. It contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine

CVTCITY - CVTCITY subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The CALCAGE Subroutine

Source
Module Language Function

HIS381Ø1 Assembler CALCAGE subroutine

Load
Module Library Function

CALCAGE HIS.SUBRTN4 CALCAGE subroutine

The HIS38101 Source Module - This module is the CALCAGE subroutine. It contains the following external reference:

GETDATE - GETDATE subroutine

The CALCAGE Load Module - This module is stored in the HIS.SUBRTN4 library to allow inclusion of CALCAGE by automatic call when link-editing. It contains the HIS38101 source module.

The SGNXCHK Subroutine

Source
Module Language Function
HIS381Ø2 PL/I SGNXCHK subroutine

The HIS381 \emptyset 2 Source Module - This module is the SGNXCHK subroutine. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The EDITSGN Subroutine

Source
Module Language Function
HIS381Ø3 PL/I EDITSGN subroutine

The HIS381 ϕ 3 Source Module - This module is the EDITSGN subroutine. It contains the following external references:

PRINTER, PRINT - PRINT subroutine

The LIST-SIGNS-BY-STREET Program

Source Module	Language	Funct	ion
HIS382ØØ HIS382Ø2	PL/I PL/I	LIST-SIGNS-BY-STREET mainline SIGNS subroutine	
Load Module	Entry Point	Library	Function
HIS382ØØ	PLISTART	HIS.REL4PTØ	LIST-SIGNS-BY-STREET

The HIS382 $\phi\phi$ Source Module - This module is the mainline program of LIST-SIGNS-BY-STREET. It checks the command format and reads the request cards if supplied. It then calls SIGNS, which builds a scratch file with the data for listing. It then prints the signs-by-street listing. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETNEW, SETPOS, SETINST, DUMP - PRINT subroutine

CVTCITY - CVTCITY subroutine

DUMPDD - DUMPDD subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

DATE4 - DATE4 subroutine

USNRD, USNRDF, USNRDC - USNRD subroutine

SIGNS - SIGNS subroutine

The HIS382 ϕ 2 Source Module - This module is the SIGNS subroutine. It builds and sorts a scratch file which is then printed by the LIST-SIGNS-BY-STREET mainline. It contains the following external references:

PRINTER, PRINT, DUMP - PRINT subroutine
USNRD, USNRDF, USNRDC - USNRD subroutine

The HIS38200 Load Module - The LIST-SIGNS-BY-STREET load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø13	CVTCITY subroutine
*	HIS38Ø11	USNRD interface
	HIS382ØØ	LIST-SIGNS-BY-STREET mainline
	HIS382Ø2	SIGNS subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUMMARY-BY-CONDITION Program

Source			
Module	Language	Funct	ion
HIS382Ø4 HIS382Ø5 HIS382Ø6 HIS382Ø7	PL/I PL/I PL/I PL/I	SUMMARY-BY-CONDITION mainline SUMCNDA subroutine SUMCNDB subroutine SUMCNDC subroutine	
Load Module	Entry Point	Library	Function
HIS382Ø4	PLISTART	HIS.REL4PTØ	SUMMARY-BY-CONDITION

The HIS382 ϕ 4 Source Module - This module is the mainline program. It calls the three summary-by-condition subroutines in the proper order. Calling sequences to the three subroutines are identical. Three arguments are passed:

- 1. PTR-VAL A pointer to a summary values array.
- 2. PTR-SUM A pointer to a summary option array.
- 3. RC A binary fixed(15) return code.

Return codes from each subroutine are:

- Ø Successful
- 1 Unsuccessful

The summary value array is allocated within the mainline, and contains a number of fixed(7) variables in which the summary calculations are performed. The summary option array is allocated within the mainline, and contains a number of bit-string variables. This array is used for indicators governing which summaries are calculated and printed.

The mainline module contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

SUMCNDA, SUMCNDB, SUMCNDC - Summary-by-condition subroutines

The HIS382 ϕ 5 Source Module - This module is the SUMCNDA subroutine. It is an initialization subroutine. It performs the following functions:

- Check the command for validity and print a list of the selected options.
- 2. Fill in the summary option array based on the SUMMARIES and DDNAME parameters.
- 3. Initialize the summary value array to zeroes.

SUMCNDA contains the following external references:

PRINTER, PRINT, SETINST - PRINT subroutine

DUMPDD - DUMPDD subroutine

CVTCITY - CVTCITY subroutine

The HIS38206 Source Module - This module is the SUMCNDB subroutine. It reads the urban sign inventory file and performs calculations for the summary. It performs all of the necessary calculations including the calculations of totals. SUMCNDB contains the following external references:

PRINTER, PRINT, SETINST - PRINT subroutine
USNRD, USNRDF, USNRDC - USNRD subroutine

The HIS382Ø7 Source Module - This module is the SUMCNDC subroutine. It prints the requested summaries using the values calculated by SUMCNDB. No calculations other than calculation of percentages are performed in SUMCNDC. SUMCNDC contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETPOSA, SETHDG, SETINST - PRINT subroutine

DATE4 - DATE4 subroutine

The HIS38204 Load Module - The SUMMARY-BY-CONDITION load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø13	CVTCITY subroutine
*	HIS38Ø11	USNRD interface
	HIS382Ø4	SUMMARY-BY-CONDITION mainline
	HIS382Ø5	SUMCNDA subroutine
	HIS382Ø6	SUMCNDB subroutine
	HIS382Ø7	SUMCNDC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUMMARY-BY-SIGN-CODE Program

Source Module	Language	Funct	ion
HIS382Ø8 HIS382Ø9 HIS3821Ø	PL/I PL/I PL/I	SUMMARY-BY-SI SUMCODA subro SUMCODB subro	
Load Module	Entry Point	Library	Function
HIS382Ø8	PLISTART	HIS.REL4PTØ	SUMMARY-BY-SIGN-CODE

The HIS38208 Source Module - This module is the mainline program of SUMMARY-BY-SIGN-CODE. It calls the SUMCODA subroutine first and then the SUMCODB subroutine. The calling sequence to each of these subroutines is identical. The following arguments are passed:

- 1. TOTAL fixed(7) for count of number of signs.
- 2. RC binary fixed(15) for return code.

Return codes are:

- Ø Successful
- 1 Unsuccessful

The mainline program contains the following external references:

PRINTER, PRINT, SETHDG, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

SUMCODA, SUMCODB - Summary-by-sign-code subroutines

The HIS38209 Source Module - This module builds and sorts a scratch file that can be used to produce the summary-by-sign-code. One record is written to this file for each sign selected. The record format of the scratch file is:

Columns	Length	Format	Contents
1-1Ø	1Ø	char(10)	Sign code number
11-12	2	char(2)	Supplemental code
13-14	2	fixed(3)	Horizontal dimension
15-16	2	fixed(3)	Vertical dimension
17	1	fixed(1)	Shape
18-19	2	fixed(2)	Color
2Ø	1	fixed(1)	Face
21	1	fixed(1)	Material
22	1	fixed(1)	Letter type

The file is sorted in order using the entire record as a sort field (using the sort statement 'SORT FIELDS=(1,22,A),FORMAT=CH'). The record can be sorted in character format because the decimal fields contain only positive or zero values. SUMCODA contains the following external references:

PRINTER, PRINT, SETINST - PRINT subroutine
USNRD, USNRDF, USNRDC - USNRD subroutine
DUMPDD - DUMPDD subroutine

The HIS3821Ø Source Module - This module is the SUMCODB subroutine. It produces the final printed report of SUMMARY-BY-SIGN-CODE. It operates by reading the scratch file built by SUMCODA, counting up records that are identical. Sign descriptions are retrieved from the sign code cross-reference file, which can be read sequentially because the input scratch file is sorted in order by sign code number. SUMCODB contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETNEW, SETINST, SETHDG, DUMP PRINT subroutine

PDSRD, PDSRDO, PDSRDF, PDSRDC - PDSRD subroutine

DUMPDD - DUMPDD subroutine

DATE4 - DATE4 subroutine

CVTCITY - CVTCITY subroutine

The HIS38208 Load Module - The SUMMARY-BY-SIGN-CODE load module contains the following source modules:

	Source Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS2ØØ56	CHECKDD interface
*	HIS2Ø981	PDSRD subroutine
*	HIS21Ø13	CVTCITY subroutine
*	HIS38Ø11	USNRD interface
	HIS382Ø8	SUMMARY-BY-SIGN-CODE mainline
	HIS382Ø9	SUMCODA subroutine
	HIS3821Ø	SUMCODB subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SUMMARY-BY-DATE Program

Source			
Module	Language	Funct	ion
HIS38211	PL/I	SUMMARY-BY-DA	ATE mainline
HIS38212	PL/I	SUMDATA subro	outine
HIS38213	PL/I	SUMDATB subro	outine
HIS38214	PL/I	SUMDATC subro	outine
Load	Entry		
_Module	Point	Library	Function
HIS38211	PLISTART	HIS.REL4PTØ	SUMMARY-BY-DATE

The HIS38211 Source Module - This module is the mainline program. SUMMARY-BY-DATE is structured along the same lines as the SUMMARY-BY-CONDITION program. The comments above for the HIS38204 source module are applicable to HIS38211, including calling sequences to the SUMMARY-BY-DATE subroutines. The HIS38211 source module contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

SUMDATA, SUMDATB, SUMDATC - Summary-by-date subroutines

The HIS38212 Source Module - This module is the SUMDATA subroutine. For a description of its functions, refer to the HIS382Ø5 source module above. SUMDATA contains the following external references:

PRINTER, PRINT, SETINST - PRINT subroutine

DUMPDD - DUMPDD subroutine

CVTCITY - CVTCITY subroutine

The HIS38213 Source Module - This module is the SUMDATB subroutine. For a description of its functions, refer to the HIS382 ϕ 6 source module above. SUMDATB contains the following external references:

PRINTER, PRINT - PRINT subroutine
USNRD, USNRDF, USNRDC - USNRD subroutine
GETDATE - GETDATE subroutine

The HIS38214 Source Module - This module is the SUMDATC subroutine. For a description of its functions, refer to the HIS382 ϕ 7 source module above. SUMDATC contains the following external references:

PRINTER, PRINT, PRINTA, PRINTB, SETPOS, SETPOSA, SETNEW, SETHDG, SETINST - PRINT subroutine

GETDATE - GETDATE subroutine

DATE4 - DATE4 subroutine

The HIS38211 Load Module - The SUMMARY-BY-DATE load module contains the following source modules:

	Source Module	Function
	Hoduic	Tunction
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø13	CVTCITY subroutine
*	HIS38Ø11	USNRD interface
	HIS38211	SUMMARY-BY-DATE mainline
	HIS38212	SUMDATA subroutine
	HIS38213	SUMDATB subroutine
	HIS38214	SUMDATC subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The SIGN-CODE-XREF Program

Module_	Language	Funct	ion
HIS386ØØ	PL/I	SIGN-CODE-XRE	EF mainline
Load Module	Entry Point	Library	Function
HIS386ØØ	PLISTART	HIS.REL4PTØ	SIGN-CODE-XREF

The HIS386 $\phi\phi$ Source Module - This module is the SIGN-CODE-XREF program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOS, SETHDG, SETINST, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

DUMPDD - DUMPDD subroutine

The HIS386 $\phi\phi$ Load Module - The SIGN-CODE-XREF load module contains the following source modules:

	Source	
	<u>Module</u>	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
	HIS386ØØ	SIGN-CODE-XREF mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The UPDATE Programs

Source Module	Language	Funct	ion
HIS387ØØ	PL/I	Delete functi	on mainline
HIS387Ø1	PL/I	Insert functi	on mainline
HIS387Ø2	PL/I	New-key funct	ion mainline
HIS387Ø3	PL/I	Rewrite funct	ion mainline
HIS387Ø5	PL/I	USNINST subro	utine (insert)
HIS3871Ø	PL/I	USNCOPY subro	utine
HIS38711	PL/I	USNCVT subrou	tine
HIS38712	PL/I	USNEDIT subro	utine
HIS38714	PL/I	USNEDRD subro	utine
HIS38715	PL/I	USNEDIN subro	utine
HIS38716	PL/I	USNEDER subro	utine
Load Module	Entry Point	Library	Function
UTC 20744	DITCTADT	HIC DELADED	Dolate function
HIS387ØØ HIS387Ø1	PLISTART PLISTART	HIS.REL4PTØ	Delete function Insert function
HIS387Ø2	PLISTART	HIS.REL4PTØ	
•		HIS.REL4PTØ	New-key function
HIS387Ø3	PLISTART	HIS.REL4PTØ	Rewrite function

The HIS38700 Source Module - This module is the mainline program of the delete function. It contains the following external references:

PRINTER, PRINT, SETINST, SETHDG, DUMP - PRINT Dibroutine

DATE4 - DATE4 subroutine

CVTCITY - ('VICITY subroutine

CHECKDD - CHECKDD subroutine

The HIS387Øl Source Module - This module is the mainline program of the intert function. It performs the scan/edit phase in which the data cards are read and edited (by the USNEDI subroutine), a sort field is added, and the cards are written to a scratch file. The mainline programs also performs the card sort. The USNINST subroutine is then called to perform the file updates. The mainline program contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

DUMPDD - DUMPDD subroutine

CHECKDD - CHECKDD subroutine

CVTCITY - CVTCITY subroutine

USNINST - USNINST subroutine

USNED1, USNED11, USNED1C - USNED1 subroutine

The HIS387 ϕ 2 Source Module - This module is the mainline program of the new-key function. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST - PRINT subroutine

CVTCITY - CVTCITY subroutine

DUMPDD - DUMPDD subroutine

DATE4 - DATE4 subroutine

CHECKDD - CHECKDD subroutine

The HIS387 ϕ 3 Source Module - This module is the mainline program of the rewrite function. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

CVTCITY - CVTCITY subroutine

DUMPDD - DUMPDD subroutine

CHECKDD - CHECKDD subroutine

The HIS387 ϕ 5 Source Module - This module is the USNINST subroutine. It performs the actual file updates for the insert function using the scratch file that is built and sorted by the mainline program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETHDG, SETINST, SETNEW, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

USNRDQ, USNRDQF, USNRDQX, USNRDQC - USNRDQ subroutine

USNCVT - USNCVT subroutine

USNCOPY - USNCOPY subroutine

GETDATE - GETDATE subroutine

CVTCITY - CVTCITY subroutine

CHECKDD - CHECKDD subroutine

The HIS3871Ø Source Module - This module is the USNCOPY subroutine. It contains no external references.

The HIS38711 Source Module - This module is the USNCVT subroutine. It contains the following external references:

USNXY - USNXY subroutine

The HIS38712 Source Module - This module is the USNEDIT subroutine. It contains the following external references:

PRINTER, PRINT, SETINST, DUMP - PRINT subroutine

USNEDRD - USNEDRD subroutine

(continued on next page)

USNEDIN - USNEDIN subroutine

USNEDER - USNEDER subroutine

DATEDIT - DATEDIT subroutine

GETDATE - GETDATE subroutine

The HIS38714 Source Module - This module is the USNEDRD subroutine. It reads the city's edit table into a core structure. It contains the following external references:

PDSRD, PDSRDO, PDSRDF, PDSRDC - PDSRD subroutine

PRINTER, PRINT, PRINTA, SETPOS, SETINST, DUMP - PRINT subroutine

CVTCITY - CVTCITY subroutine

The HIS38715 Source Module - This module is the USNEDIN subroutine. It interprets the city's edit table, constructing a core structure that is easily used by the edit routines. It contains the following external references:

PRINTER, PRINT, SETPOS, SETINST, DUMP - PRINT subroutine

The HIS38716 Source Module - This module is the USNEDER subroutine. It builds an array of codes indicating the levels of the various messages (severe, warning, or disabled). It contains the following external references:

CHECKDD - CHECKDD subroutine
PRINTFR, PRINT, PRINTA, SETPOS, SETNEW - PRINT subroutine

The HIS387 $\phi\phi$ Load Module - The delete function load module contains the following source modules:

Source Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ53	TABLRD interface
* HIS2ØØ56	CHECKDD interface
* H1S2ØØ58	GETLIST subroutine

(continued on next page)

	Source Module	Function
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø13	CVTCITY subroutine
	HIS387ØØ	Delete mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS387 ϕ 1 Load Module - The insert function load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ56	CHECKDD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø3	DATEDIT subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS2Ø981	PDSRD subroutine
*	HIS21Ø13	CVTCITY subroutine
*		USNRDQ interface
	HIS381ØØ	USNXY subroutine
	HIS387Ø1	Insert mainline
	HIS387Ø5	USNINST subroutine
	HIS3871Ø	USNCOPY subroutine
	HIS38711	USNCVT subroutine
	HIS38712	USNEDIT subroutine
	HIS38714	USNEDRD subroutine
	HIS38715	USNEDIN subroutine
	HIS38716	USNEDER subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS387 ϕ 2 Load Module - The new-key function load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ56	CHECKDD interface
*	HIS2ØØ57	DUMPDD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS21Ø13	CVTCITY subroutine
	HIS387Ø2	New-key mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The HIS387 ϕ 3 Load Module - The rewrite function load module contains the following source modules:

Source Module	Function
* HIS2ØØ5Ø	PRINT interface
* HIS2ØØ53	FETCH interface
* HIS2ØØ56	CHECKDD interface
* HIS2ØØ57	DUMPDD interface
* HIS2ØØ58	GETLIST subroutine
* HIS2Ø9Ø2	GETDATE subroutine
* HIS2Ø9Ø3	DATEDIT subroutine
* HIS2Ø9Ø7	DATE2 subroutine
* HIS2Ø9Ø9	DATE4 subroutine
* HIS2Ø981	PDSRD subroutine
* HIS21Ø13	CVTCITY subroutine
HIS38100	USNXY subroutine
HIS387Ø3	Rewrite mainline
HIS38712	USNEDIT subroutine
HIS38714	USNEDRD subroutine
HIS38715	USNEDIN subroutine
HIS38716	USNEDER subroutine

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The PURGE Program

Source Module	Language	Funct io n	
	<u> </u>	T directori	
HIS387Ø4	PL/I	PURGE mainlin	ne
Load	Entry		
Module	Point	Library	Function
HIS387Ø4	PLISTART	HIS.REL4PTØ	PURGE

The HIS387 ϕ 4 Source Module - This module is the PURGE program. It contains the following external references:

SETINST - PRINT subroutine

CVTCITY - CVTCITY subroutine

The HIS387 ϕ 4 Load Module - The PURGE load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS21Ø13	CVTCITY subroutine
	HIS387Ø4	PURGE mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The REORGANIZE Program

Source			
<u>Module</u>	Language	Function	on
HIS38722	PL/I	REORGANIZE ma	ainline
Load Module	Entry Point	Library	Function
HIS38722	PLISTART	HIS.REL4PTØ	REORGANIZE

The HIS38722 Source Module - This module is the REORGANIZE program. It contains the following external references:

PRINTER, PRINT, SETHDG, SETINST, DUMP - PRINT subroutine

DATE4 - DATE4 subroutine

BACKUP - BACKUP subroutine

LOAD - LOAD subroutine

CVTCITY - CVTCITY subroutine

CHECKDD - CHECKDD subroutine

The HIS38722 Load Module - The REORGANIZE load module contains the following source modules:

	urce dule	Function
* HIS	20050	PRINT interface
* HIS	20053	TABLRD interface
* HIS	2ØØ56	CHECKDD interface
* HIS	20057	DUMPDD interface
* HIS	20058	GETLIST subroutine
* HIS	20902	GETDATE subroutine
* HIS	20907	DATE2 subroutine
* HIS	20909	DATE4 subroutine
* HIS	20990	BACKUP subroutine
* HIS	20991	LOAD subroutine
* HIS	321Ø13	CVTCITY subroutine
HIS	38722	REORGANIZE mainline

The LIST Program

Module_	Language	Function	
HIS38731	PL/I	LIST mainlir	ne
Load Module	Entry Point	Library	Function
HIS38731	PLISTART	HIS.REL4PTØ	LIST

The HIS38731 Source Module - This module is the list program. It contains the following external references:

PRINTER, PRINT, PRINTA, SETPOSA, SETPOSA, SETNEW, SETHOG, SETINST, DUMP - PRINT subroutine

USNRD, USNRDF, USNRDC - USNRD subroutine

DATEL - DATEL subroutine

DATE4 - DATE4 subroutine

TABLRD, TABLRDI, TABLRDC - TABLRD subroutine

The HIS38731 Load Module - The LIST load module contains the following source modules:

	Source	
	Module	Function
*	HIS2ØØ5Ø	PRINT interface
*	HIS2ØØ51	FETCH interface
*	HIS2ØØ53	TABLRD interface
*	HIS2ØØ58	GETLIST subroutine
*	HIS2Ø9Ø2	GETDATE subroutine
*	HIS2Ø9Ø6	DATE1 subroutine
*	HIS2Ø9Ø7	DATE2 subroutine
*	HIS2Ø9Ø9	DATE4 subroutine
*	HIS38Ø11	USNRD interface
	HIS38731	LIST mainline

^{*} Stored in HIS.SUBRTN4 to allow inclusion by automatic call.

The GREAT-FALLS-LOAD Program

Source				
Module	Language	Function		
HIS3879∅	PL/I	GREAT-FALLS-I	LOAD mainline	
Load Module	Entry Point	Library	Function	
HIS3879Ø	PLISTART	HIS.REL4pTØ	GREAT-FALLS-LOAD	

The HIS3879Ø Source Module - This module is the GREAT-FALLS-LOAD program. It contains the following external references:

PRINTER,PRINT,SETINST,DUMP - PRINT subroutine

The HIS3879Ø Load Module - The GREAT-FALLS-LOAD load module contains the following source modules:

Source Module	Function
* HIS2ØØ5Ø * HIS2ØØ58 HIS3879Ø	PRINT interface GETLIST subroutine GREAT-FALLS-LOAD mainline
* Stored	in HIS.SUBRTN4 to allow inclusion by automatic call.



